

JANUARY
(JANUARY-FEBRUARY)
1946

CHEMICAL PREVIEW

NEW

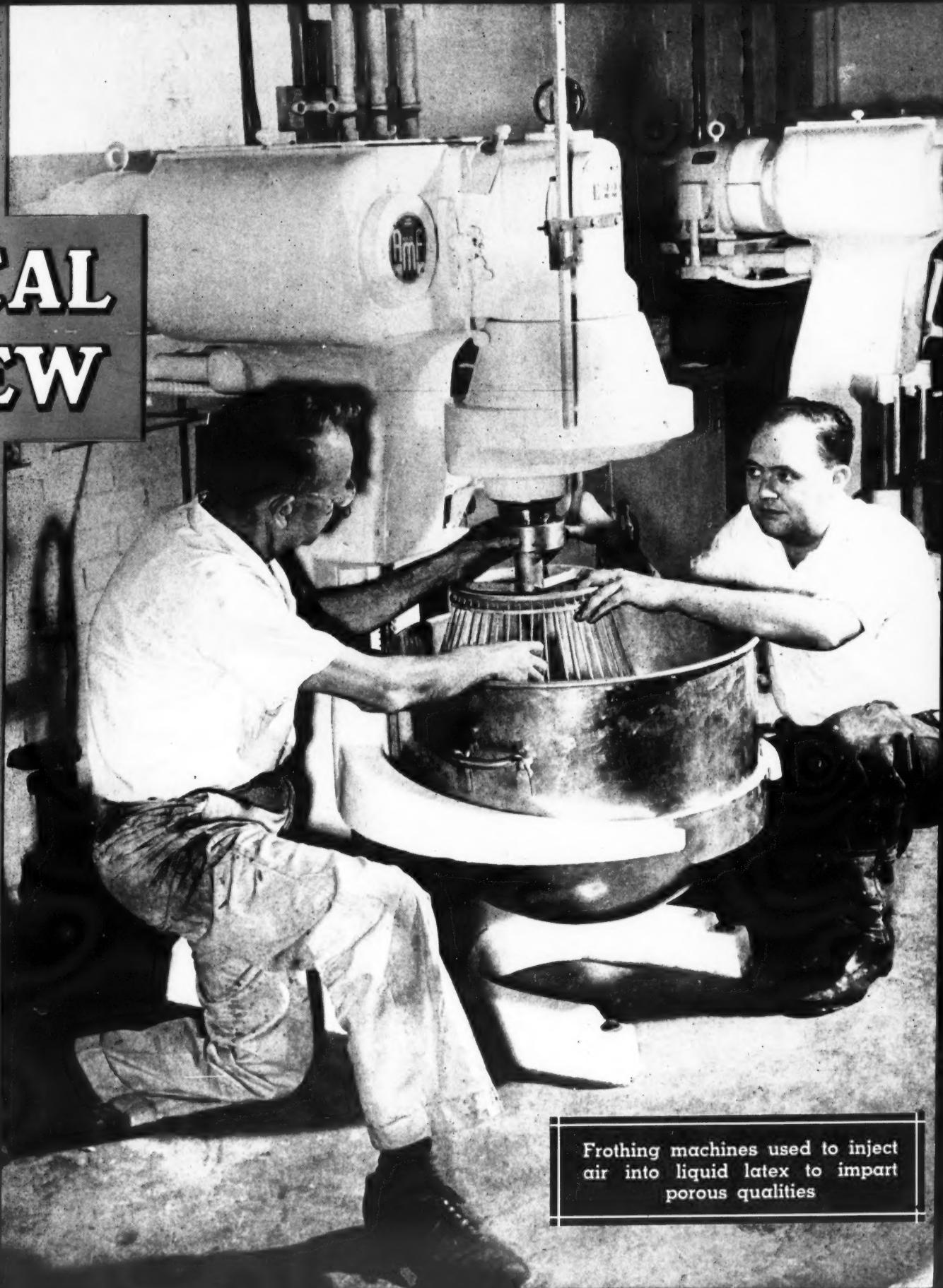
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40% Greater Heat Transfer

A compact heat exchanger provides greater heat transfer through unique construction embodying a series of spiral shaped coils mounted in a casting so that one fluid flows inside the coils and the other circulates counterflow outside. All dead air spaces are eliminated and constant velocity is maintained throughout the path of the flow, no matter how small the quantity. The problem of tubular expansion is solved by automatic action of the coiled tubing. Units handling corrosive liquids are made with Monel and nickel tubing. (As reported in Process Industries Quarterly — International Nickel Co., Inc.)

Infrared Food Processing

Very soon large processors of food products will be using infrared units to dehydrate grated cheese reports a major producer of infrared equipment. Also another food processor is about to use this method to dehydrate prunes and a large bakery is now working with the organization referred to in perfecting an infrared method for pie baking. (Fostoria Pressed Steel Co., Fostoria, Ohio.)

Benzyl Derivative Rivals Penicillin

Among the various developments during the war by German scientists that have now been revealed is a synthetic benzyl derivative said to rival penicillin in therapeutic value.

Pushbuttons Permit Patients to Raise-Lower Beds

An electrically operated "patient's" bed may be in use in hospitals and available to invalids in the near future. Practical application of push-button control instead of hand-cranks has been demonstrated in the use of experimental models. The idea is a development of a General Electric engineer. Perhaps the idea could be elaborated to operate the often inconvenient wall beds, used of necessity in small apartments.

Disconnect Switch Uses Spring Pressure

A new high current capacity, indoor disconnect switch offers advantages to industrial plant operators and to switchboard builders — in any installation where parts of heavy current capacity AC and DC circuits must be isolated. High contact pressure in the closed position and maximum ease of operating even in the largest multipole assemblies are provided by a mechanism which releases spring pressure on contact surfaces during opening and closing of the switch. Contact pressure is applied by means of pre-set spring washers instead of screw threads. Pressure on each stud contact is individually adjustable. Each parallel blade member carries its share of the total current. Visible compression of the spring washers indicates actual existence of contact pressure. Hand or hook-stick operated, this switch is available in sizes from 4000 to 10,000 amperes at 750 volts DC maximum. Range 3000-6000 amperes in AC applications. (Allis-Chalmers Mfg. Co.)

For more information on product at left, specify CP A3412
... see information request blank between pages 2-3.

Check Below For Product Information

EVERY PRODUCT DESCRIBED IN THIS ISSUE IS LISTED ON THIS SHEET. Check items that interest you, fill in your name and address on reverse side and mail to publisher. Information comes to you direct, without obligation.

JANUARY-FEBRUARY, 1946

✓ Key	Product
<input type="checkbox"/> A3412	Proportioning Engineering Service
<input type="checkbox"/> A3413	Autoclave Systems
<input type="checkbox"/> A3414	Processing Equipment
<input type="checkbox"/> A3415	Hand Lift Pallet Trucks
<input type="checkbox"/> A3416	Steam Traps
<input type="checkbox"/> A3417	Electrical Resistance Thermometers
<input type="checkbox"/> A3418	Conveyors
<input type="checkbox"/> A3419	Mixers
<input type="checkbox"/> A3420	Overhead Handling Equipment
<input type="checkbox"/> A3421	Heat Transfer Medium Sheaves
<input type="checkbox"/> A3422	Telescoping Filler
<input type="checkbox"/> A3423	White Oil
<input type="checkbox"/> A3424	Step-Valve Pumps
<input type="checkbox"/> A3425	Speed Reducers
<input type="checkbox"/> A3426	"Temperator" Communication
<input type="checkbox"/> A3427	Electronic Equipment Cabinets
<input type="checkbox"/> A3428	Aluminum Condenser Tubes
<input type="checkbox"/> A3429	pH Equipment
<input type="checkbox"/> A3430	Flexible Pipe Couplings
<input type="checkbox"/> A3431	Chemical Porcelain
<input type="checkbox"/> A3432	"Go Devil" Pipe Crawlers
<input type="checkbox"/> A3433	Batch Weighing Controls
<input type="checkbox"/> A3434	Electric Trucks
<input type="checkbox"/> A3435	Air Compressors
<input type="checkbox"/> A3436	Liquid Cooler
<input type="checkbox"/> A3437	Multi-compartment Feeders
<input type="checkbox"/> A3438	Welding Equipment
<input type="checkbox"/> A3439	Lift Trucks
<input type="checkbox"/> A3440	Centrifugal Pumps
<input type="checkbox"/> A3441	Industrial Trucks
<input type="checkbox"/> A3442	Permanent Stains
<input type="checkbox"/> A3443	Multwall Paper Bags
<input type="checkbox"/> A3444	Welded Pipe Fittings
<input type="checkbox"/> A3445	Rotato Wrapper Printers
<input type="checkbox"/> A3446	Manometer
<input type="checkbox"/> A3447	Laboratory Autoclave
<input type="checkbox"/> A3448	Hydrometers
<input type="checkbox"/> A3449	Phosphate Comparator
<input type="checkbox"/> A3450	Heat Dissipating Units
<input type="checkbox"/> A3451	Laboratory Furnace
<input type="checkbox"/> A3452	Air Compressors
<input type="checkbox"/> A3453a	Vacuum Pumps
<input type="checkbox"/> A3453b	Air Motors
<input type="checkbox"/> A3454	Machine Tool Controls
<input type="checkbox"/> A3455	Diesel Pressure Indicators
<input type="checkbox"/> A3456	Spectrophotometers
<input type="checkbox"/> A3457	Portable Pyrometers
<input type="checkbox"/> A3458	Liquid Level Controls
<input type="checkbox"/> A3459	Gas Analyzers
<input type="checkbox"/> A3460	Tank Gauges
<input type="checkbox"/> A3461	Resistors
<input type="checkbox"/> A3462	Laboratory Cabinets
<input type="checkbox"/> A3463	Fluoroscope X-ray
<input type="checkbox"/> A3464	Pneumatic Loading Control
<input type="checkbox"/> A3465	Contact Pyrometers
<input type="checkbox"/> A3466a	Controls
<input type="checkbox"/> A3466b	Proportioning Valves
<input type="checkbox"/> A3467	Flow Controls
<input type="checkbox"/> A3468	Pressure Reducing Regulator
<input type="checkbox"/> A3469	Fluidometer

✓ Key	Product
<input type="checkbox"/> A3470	Laboratory Ovens
<input type="checkbox"/> A3471	Safety Shielded Rotameter
<input type="checkbox"/> A3472	Repeat-cycle Timer
<input type="checkbox"/> A3473	Pressure Controllers
<input type="checkbox"/> A3474	Temperature Regulators
<input type="checkbox"/> A3475	Electronic Recorders
<input type="checkbox"/> A3476	Midget Thermometers
<input type="checkbox"/> A3477	Voltage Testers
<input type="checkbox"/> A3478	Cycle Controller
<input type="checkbox"/> A3479	Thermostatic Valves
<input type="checkbox"/> A3480	Pneumatic Transmitters
<input type="checkbox"/> A3481a	Vacuum Pumps
<input type="checkbox"/> A3481b	Vacuum Gauges
<input type="checkbox"/> A3482	Thermostats
<input type="checkbox"/> A3483	Laboratory Furnaces
<input type="checkbox"/> A3484	Level Controls
<input type="checkbox"/> A3485	Laboratory Furniture
<input type="checkbox"/> A3486	Temperature & Humidity Controls
<input type="checkbox"/> A3487	Book - Control Principles
<input type="checkbox"/> A3488	Interval Timer
<input type="checkbox"/> A3489	Liquid Level Gauge
<input type="checkbox"/> A3490	Gauges
<input type="checkbox"/> A3491	Selenium Rectifiers
<input type="checkbox"/> A3492	Relays & Controls
<input type="checkbox"/> A3493	Laboratory Glassware
<input type="checkbox"/> A3494	Moisture Testers
<input type="checkbox"/> A3495	Compressed Air Dryers
<input type="checkbox"/> A3496	Pressure Regulator
<input type="checkbox"/> A3497	Laboratory Apparatus
<input type="checkbox"/> A3498	Cleaners
<input type="checkbox"/> A3499	Thermometers
<input type="checkbox"/> A3500	Portable Mixers
<input type="checkbox"/> A3501	Instruments
<input type="checkbox"/> A3502	Liquid Level Controls
<input type="checkbox"/> A3503	Tachometers
<input type="checkbox"/> A3504	Static Eliminator
<input type="checkbox"/> A3505	Sanitary Rotameter
<input type="checkbox"/> A3506	Pressure Pulse Damping Unit
<input type="checkbox"/> A3507	Slurry Pumps
<input type="checkbox"/> A3508	Dust Collectors
<input type="checkbox"/> A3509	Motorized Valves
<input type="checkbox"/> A3510	Water Treatment
<input type="checkbox"/> A3511	Packaging Tester
<input type="checkbox"/> A3512	pH Equipment
<input type="checkbox"/> A3513	Thermocouples
<input type="checkbox"/> A3514	Mercury Switch Controls
<input type="checkbox"/> A3515	Dials & Scales
<input type="checkbox"/> A3516	Feed Water Regulators
<input type="checkbox"/> A3517	Fabric-lined Gloves
<input type="checkbox"/> A3518	Stone Laboratory Equipment
<input type="checkbox"/> A3519	Draintrol
<input type="checkbox"/> A3520	Pressure Regulator
<input type="checkbox"/> A3521	Diaphragm Valves
<input type="checkbox"/> A3522	Wave Amplifier
<input type="checkbox"/> A3523	Flame Failure Safeguard
<input type="checkbox"/> A3524	Temperature Controls
<input type="checkbox"/> A3525	Carboy Drainers
<input type="checkbox"/> A3526	Portable Water Bath
<input type="checkbox"/> A3527	pH Test Papers
<input type="checkbox"/> A3528	Laboratory Equipment
<input type="checkbox"/> A3529	Solenoid Valves
<input type="checkbox"/> A3530	High Vacuum Pumps
<input type="checkbox"/> A3531	Abrasives

✓ Key	Product
<input type="checkbox"/> A3532	Steam, Air, Gas Traps
<input type="checkbox"/> A3533	Condensate Return
<input type="checkbox"/> A3534	Pulsing Control Drive
<input type="checkbox"/> A3535	Volt-Ometers
<input type="checkbox"/> A3536	Safety & Relief Valves
<input type="checkbox"/> A3537	Plastic Insulation
<input type="checkbox"/> A3538	Acetate Sails
<input type="checkbox"/> A3539	Forticel Plastics
<input type="checkbox"/> A3540	Weld Spatter Compound
<input type="checkbox"/> A3541	Chemicals
<input type="checkbox"/> A3542	Drum Rollers
<input type="checkbox"/> A3543	Phenolic Resin
<input type="checkbox"/> A3544a	Carbonic Gas
<input type="checkbox"/> A3544b	Dry Ice
<input type="checkbox"/> A3545	Silica Products
<input type="checkbox"/> A3546	90% Hydrogen Peroxide
<input type="checkbox"/> A3547	Oil Black Pepper
<input type="checkbox"/> A3548	Copryl Alcohol
<input type="checkbox"/> A3549	Glycerine
<input type="checkbox"/> A3550	Dye Carrying Penetrant
<input type="checkbox"/> A3551	Floor Polish Formula
<input type="checkbox"/> A3552	Aluminum Coatings
<input type="checkbox"/> A3553	Isopropylamine
<input type="checkbox"/> A3554	Chemicals
<input type="checkbox"/> A3555	Oldsmecloy
<input type="checkbox"/> A3556	Fire Retardants
<input type="checkbox"/> A3557	Ceramics
<input type="checkbox"/> A3558	Phosphates
<input type="checkbox"/> A3559	Adhesives
<input type="checkbox"/> A3560	Furoic Acid
<input type="checkbox"/> A3561	Waxes
<input type="checkbox"/> A3562	Protective Creams
<input type="checkbox"/> A3563	Liquid Sulfur Dioxide
<input type="checkbox"/> A3564	Protective Creams
<input type="checkbox"/> A3565	Paint Remover
<input type="checkbox"/> A3566	Protective Coatings
<input type="checkbox"/> A3567	Acid Stable Dispersing Agents
<input type="checkbox"/> A3568	Tenite Extrusion Data
<input type="checkbox"/> A3569	Synthetic Rubber Products
<input type="checkbox"/> A3570a	Adhesives
<input type="checkbox"/> A3570b	Putty
<input type="checkbox"/> A3571	Ratchet Pipe Threaders
<input type="checkbox"/> A3572	Alkyd Resin
<input type="checkbox"/> A3573	Condensed Fish Solubles
<input type="checkbox"/> A3574	Plastic Lead Seal
<input type="checkbox"/> A3575	Plastic Cork Coating
<input type="checkbox"/> A3576	Nitrogen
<input type="checkbox"/> A3577	Protective Cream
<input type="checkbox"/> A3578	Waterproof Paper Sealer
<input type="checkbox"/> A3579	Alloys
<input type="checkbox"/> A3580	Protective Coatings
<input type="checkbox"/> A3581	Pipe Wrenches
<input type="checkbox"/> A3582	Glass Insulation
<input type="checkbox"/> A3583	Heat Exchangers
<input type="checkbox"/> A3584	Relief Valve & Safety Head
<input type="checkbox"/> A3585	Autoclaves
<input type="checkbox"/> A3586	Lighting Fixtures
<input type="checkbox"/> A3587	Worm Gear Speed Reducers
<input type="checkbox"/> A3588	Air Filters
<input type="checkbox"/> A3589	Pulverizer
<input type="checkbox"/> A3590	Tray Dryers
<input type="checkbox"/> A3591	Steam-Jet Coolers
<input type="checkbox"/> A3592	Vibrating Screens
<input type="checkbox"/> A3593	Fire Protection Equipment

✓ Key	Product
<input type="checkbox"/> A3594	Processing Equipment
<input type="checkbox"/> A3595	Glass Tanks
<input type="checkbox"/> A3596	Portable Mixers
<input type="checkbox"/> A3597	Permanent Mixers
<input type="checkbox"/> A3598	Processing Equipment
<input type="checkbox"/> A3599	Pumps
<input type="checkbox"/> A3600	Stainless Steel
<input type="checkbox"/> A3601	Cascade Coolers
<input type="checkbox"/> A3602	Acid-handling Pumps
<input type="checkbox"/> A3603	Dust Collectors
<input type="checkbox"/> A3604	Stainless Steel Tanks
<input type="checkbox"/> A3605	Agitators
<input type="checkbox"/> A3606	Glass Filter Medium
<input type="checkbox"/> A3607	Pipe Conduit
<input type="checkbox"/> A3608	Acid Drums
<input type="checkbox"/> A3609	Cotton Duck & Filter Fabrics
<input type="checkbox"/> A3610a	Reducing & Mixing Equipment
<input type="checkbox"/> A3610b	Elevator Buckets
<input type="checkbox"/> A3611	Screw Conveyors
<input type="checkbox"/> A3612	Lighting Fixtures
<input type="checkbox"/> A3613	Asbestos Disk Filters
<input type="checkbox"/> A3614	Printer-Developer
<input type="checkbox"/> A3615	Armogrids
<input type="checkbox"/> A3616	Pumps
<input type="checkbox"/> A3617	Carton Stitcher Machine
<input type="checkbox"/> A3618	Corrosion-proof Stoneware
<input type="checkbox"/> A3619	Steel Grating
<input type="checkbox"/> A3620	Pumps
<input type="checkbox"/> A3621	Centrifugals
<input type="checkbox"/> A3622	De-ionizing Units
<input type="checkbox"/> A3623	Fatty Acid Distillation
<input type="checkbox"/> A3624	Gate Valves
<input type="checkbox"/> A3625	Fractional HP Drives
<input type="checkbox"/> A3626	Nickel Alloys
<input type="checkbox"/> A3627	Spray Nozzles
<input type="checkbox"/> A3628	Laboratory Ware
<input type="checkbox"/> A3629	Decanters
<input type="checkbox"/> A3630	Drying Systems
<input type="checkbox"/> A3631	Tube Cleamer Brushes
<input type="checkbox"/> A3632	Pipe Sealing Compound
<input type="checkbox"/> A3633	Electric Motors
<input type="checkbox"/> A3634	Barrel Dumpers
<input type="checkbox"/> A3635	Pumps
<input type="checkbox"/> A3636	Portable Conveyors
<input type="checkbox"/> A3637	Pipe Hangers
<input type="checkbox"/> A3638	Friction Sawing
<input type="checkbox"/> A3639	Material Handling Equipment
<input type="checkbox"/> A3640	Fastenings
<input type="checkbox"/> A3641	Gasoline Production Methods
<input type="checkbox"/> A3642	Steam Generators
<input type="checkbox"/> A3643	Flexible Metal Hose
<input type="checkbox"/> A3644	Rotary Pumps
<input type="checkbox"/> A3645	Magnetic Separators
<input type="checkbox"/> A3646	Controls & Switches
<input type="checkbox"/> A3647	Centrifugal Pumps
<input type="checkbox"/> A3648	Stainless Steel Fastenings
<input type="checkbox"/> A3649	Gravity Conveyors
<input type="checkbox"/> A3650	Processing Equipment
<input type="checkbox"/> A3651	Compressors
<input type="checkbox"/> A3652	Steel Strapping
<input type="checkbox"/> A3653	Pump Engineering Data

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Additional items on reverse side

**MORE PRODUCT INFORMATION — Continued from reverse side of this sheet. Check items that interest you.
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See Reverse Side of this Sheet

✓ Key	Product	✓ Key	Product	✓ Key	Product	✓ Key	Product
A3653	Flexible Couplings	A3703	Pumps	A3755	Code Daters	A3807	Steel Stools
A3654	Drier Analyzers	A3704	Homogenizers	A3756	Laboratory Stirrers	A3808	Butterfly Valves
A3655	Rotary Coolers & Dryers	A3705	Soybean Products	A3757	Filters	A3809	Filter Presses
A3656	Electric Strip Heaters	A3706	Multi-purpose Grinder	A3758	Steam Traps	A3810	Screens
A3657	Steel & Alloy Equipment	A3707	pH Meters	A3759	Lecithin	A3811	Cascade Coolers
A3658	Bending Presses	A3708	Stainless-steel Steel	A3760	Test Sifter	A3812	Dipping & Melting Tanks
A3659	Couplings	A3709	Filters	A3761	Filter Press Closers	A3813	Timing Controls
A3660	Lubrication System	A3710	Diaphragm Pumps	A3762	Filters	A3814	Dust Collectors
A3661	Refrigeration Catalog	A3711	Stainless Steel Castings	A3763	Cabinet Ovens	A3815	Valves
A3662	Ethylenimines	A3712	Report on Vs Boxes	A3764	Safety Valves	A3816	Steam Traps
A3663	Plug Valves	A3713	Heat Exchangers	A3765	Power Drives	A3817	Condenser Tube Protectors
A3664	Lubricating Systems	A3714	Oil Field Chains	A3766	Magnetic Separator	A3818	Fire Extinguishing Systems
A3665	Ring Gaskets	A3715	Pulverizers	A3767	Photocopy Equipment	A3819	Vacuum Pumps
A3666	Unit Heaters	A3716	Processing Equipment	A3768	Glass Containers	A3820	Gravity Feed Oilers
A3667	Spray Nozzles	A3717	Pressure Relief Valve	A3769	Welding Apparatus	A3821	Frozen Food Containers
A3668a	Non-return Valve Catalog	A3718	Switches & Thermostats	A3770	Steam Traps	A3822	Glass Processing Controllers
A3668b	Blow-off Valve Catalog	A3719	Stainless Steel Valves	A3771	Mixers	A3823	Metallic Packings
A3669a	Gate Valve Catalog	A3720	Centrifugal Pumps	A3772	Handling Equipment	A3824	Electric Hoists
A3669b	Mixing Kettles	A3721	Rolls	A3773	Nozzles	A3825	Corrosion-resistant Alloys
A3670	Air Separators & Trap	A3722	Perforated Mediums	A3774	Centrifugal Pumps	A3826	Industrial Lites
A3671	Motor Vehicle Fire Manual	A3723	Direct-fired Heaters	A3775	Welded Process Equipment	A3827	Motorized Trucks
A3672	Alloys	A3724	Welding Data Chart	A3776	Gas Meters	A3828	Air Cleaners
A3673	Jet Pumps	A3725	Pneumatic Conveyors	A3777	Scales	A3829	Stainless Steel Floats
A3674	Ball-bearing Swivels	A3726	Testing Sieves	A3778	Fluorescent Fixtures	A3830	Vapor Collectors
A3675	Barrel Conveyors	A3727	Masonry Saws	A3779	Current Input Controllers	A3831	Processing Equipment
A3676	Transit Systems	A3728	Corrosion Resistant Equipment	A3780	Porous Stone Filters	A3832	Heat Transfer Equipment
A3677	Tubing	A3729	Satinized Panel Crates	A3781	Pumps	A3833	Gate Valves
A3678	Instant Water Heaters	A3730	Knife Tipped Hammers	A3782	Industrial Trucks	A3834	Acid Hoods
A3679	Journal of Commerce	A3731	Motors	A3783	Rotary Filling Machine	A3835	Steam Meters
A3680	Process Drying Ovens	A3732	Pulley & Magnetic Separators	A3784	Thread & Ring Gauges	A3836	Crane Bridge Brake Control
A3681	Drum Trucks	A3733	Centrifugal Pumps	A3785	Casters	A3837	Handling Equipment
A3682	Gyratory Crushers	A3734	Pressure Reducing Valves	A3786	Propeller Fans	A3838	Labels
A3683	Synchronous Motors	A3735	Metal Tanks	A3787	Paper Cutting Controls	A3839	Glass Pipe & Fittings
A3684	Tube-working tools	A3736	Flashlight Storage Batteries	A3788	Safety Cans	A3840	Separators
A3685	Strainers	A3737	Filters	A3789	Instant Drying Apparatus	A3841	Vibration Mounting
A3686	Weighing Feeders	A3738	Plastic Cans	A3790	Drum Brakes	A3842	Gyroscopic Screens
A3687	Mixers	A3739	Resistance Thermometers	A3791	Ultraviolet Light	A3843	Chain Drives
A3688	Bag Holders	A3740	Water Cooling Units	A3792	Desalinizers	A3844	Dust Collectors
A3689	Stainless Steel Sheets	A3741	Immersion Type Heaters	A3793	Adjustable Speed Drives	A3845	Centrifugal Pumps
A3690	Steam Jet Ejectors	A3742	Fire Extinguishers	A3794	Dust Collectors	A3846	Chemical Industries Exposition
A3691	Industrial Ovens	A3743	Compressed Air Purifiers	A3795	Magnetic Separators	A3847	Steam Generators
A3692	Tube Cleaners	A3744	Humidity Controls	A3796	Welded Mechanical Tubing	A3848	Neoprene Gloves
A3693	Vibrating Screens	A3745	Valves	A3797	Yard Trucks	A3849	Grease Systems
A3694	Oil Circulation Units	A3746	Laboratory Driers	A3798	Buckets	A3850	Power Shovels
A3695	Welding Accessories Catalog	A3747	Humidifiers	A3799	Mixers	A3851	Steam Traps
A3696	Control Equipment	A3748	V-Belts	A3800	Floor Matting	A3852	Lighting Equipment
A3697	Steel Valves	A3749	Bag Closers	A3801	Latex Foam Products	A3853	Filters
A3698	Glass Pipe	A3750	Elevating Tables	A3802	Engine Governor	A3854	Floor Patch
A3699	Processing Equipment	A3751	Thermosetting Plastics	A3803	Electrical Equipment	A3855	Control Valves
A3700	Vibration Mounting	A3752	Butt Welded Joints	A3804	Commed Hydrogen	A3856	Storage Bins
A3701	Drying Ovens	A3753	Air Separator	A3805	Synthetic Rubber Gloves	A3857	Neoprene Gloves
A3702	Cooling Towers	A3754	Heating Units	A3806	Pulp Press	A3858	Fourth Cover Proportioning Pump

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Your Title

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Your Firm

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Fill in and mail this form to CHEMICAL PREVIEW, 737 N. Michigan Ave., Chicago 11, Illinois

"That's Interesting"

Unique Pressure Sensitive Device

The Baldwin Locomotive Works Southwark Division has developed a pressure sensitive utilizing the principle that the electrical characteristics of a wire filament change with a physical strain. This SR-4 device is used to convert gas or liquid pressure to electrical energy for measuring, recording or controlling. Accuracy of one fourth of one percent of full scale means that it can be used for operations that heretofore have not been possible. It is available in several ranges up to 0-20,000 psi. Essentially an electronic device it will enable results to be transmitted long distances for direct reading, recording or control. Transmission by radio is even feasible. This will eliminate the leakage and clogging troubles on conventional capillary tubes. The heart of the device is a fine filament wire bonded to a hollow metal core against which is exerted the gas or liquid pressure to be measured. As the pressure increases this filament stretches, thus changing the diameter of the wire and causing measurable changes in the electrical resistance of the wire. This change in resistance varies the amount of current flowing through the filament circuit and when amplified, these changes show on dial or are used to actuate control. The filament is sensitive to a "stretch" of the metal core of only one millionth of an inch. The device is hermetically sealed and an ingenious built-in compensator cancels out the effect of any extraneous force such as temperature. It is approximately one inch in diameter and five and one half inches in length. As its name implies, it is based on the Baldwin strain gage SR 4 for information on strains and stresses of materials and structures under load conditions. The new SR-4 pressure sensitive device should have applications in steel mills, refineries and various processing plants.

Microfilm Used In Reproduction, Examination And Safekeeping Of Vital Technical Records

Microfilm — used to such great advantage in many applications throughout the war — offers an answer to the need for efficient means of preservation, convenient, safe, space saving storage and better visibility of drawings, diagrams, charts, tabulations, etc. The new system now available to industrial organizations comprises a camera unit for putting these vital records, drawings, etc. on microfilm and a projector unit which makes it possible to project these films in enlarged reproduction to the best advantage for closest inspection and study of specific data. As the film bearing the individual records is so small it can easily be stored with many others in a very small space that may be provided with every safeguard for the utmost protection.

Domestic Potash Now Meets All Demands

In 1941 this country was dependent on imports for its supply of potash. During the past years our potash mines have not only provided for our own needs but contributed to requirements of Canada and other allies. 1944 consumption was about 743,000 tons. (Domestic Commerce)

Device Protects Small Pipe When in Vise

A handy tool has been invented for holding thin walled pipe, such as that used for gas meters. Such pipe is crushed if held too tight and the vise jaws mar the surface. Called the "Nip-Grip" it consists of two retainer blocks for fitting into any vise horizontally or vertically. Hardened steel inserts in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ sizes provide for gripping the pipe. Pins on the block hold the latter from slipping out of the vise. Springs between the blocks push the two halves apart when the vise is opened. (The Flowline)

New Research Laboratory Has Air Cleaning, Radiant Heating

An ultra-modern research laboratory nearing completion in Pittsburgh is indicative of present trends. It will be without a single window, utilizing air conditioning and fluorescent lighting and a radiant heating system. Wrought iron pipe is to be installed under asphalt tile flooring, eliminating conventional heating units in the laboratory. Augmenting the air-conditioning system, an air cleaning apparatus will contribute to greater accuracy and testing control. This new laboratory having 12,000 square feet of floor space will house the research facilities of the Heppenstall Co., Pittsburgh.

Do your plans require SPECIAL STAINLESS STEEL PROCESS EQUIPMENT?

Pfaudler glass-lined steel and alloy steel equipment is available in standard as well as custom-built designs. Following is a partial classification:

Agitators (with vessels)
Alloy Steel Equipment
Autoclaves
Blenders
Coils, Cooking, Cooling, Refrigerant
Columns
Concentrators, Acid
Condensers, Reflux
Cookers
Coolers, Acid
Cooperage, Brewery
Crystallizers
Deodorizers
Deodorizers
Digesters
Dissolvers
Distillation Equipment
Dryers, Rotary, glass-lined
Drying Tables
Emulsifiers
Evaporators, Vacuum
Extractors
Fermenters
Filling machines (gravity flow and piston)
Fittings, Pipe, glass-lined
Heat Exchangers
Glass-lined steel equipment
Kettles: glass-lined, alloy steel
Kettles, reaction
Kettles, vacuum
Mixers and Mixing Vessels
Nitrators
Pans: crystallizing, evaporating
Pasteurizers: juices, milk
Percolators
Pipe, glass-lined steel
Polymerizers
Pressure Vessels
Reaction Equipment
Recovery Plant (Solvent)
Stills
Sulphonators
Tanks: glass-lined, alloy steel
Towers, absorption
Truck Tanks
Vacuum Pans
Valves, glass-lined

Stainless Steel scrubbers built by Pfaudler for exacting duty in processing chemicals.

Pfaudler Experience in Design and Fabrication of Stainless Steel and Alloy Equipment Has Helped Many Processors

In Pfaudler's standardized line of stainless steel process equipment, you may be able to get just the units you require for your operations. With the experience gained through many years of service to process industries, Pfaudler engineers have designed these Stainless Steel Reaction Kettles to include those features which are required for a majority of conditions. They have ample top head openings to accommodate incoming product lines, light, vapor take off, agitator, etc. These units are built in sizes from 5 to 500 gallons capacity. Here is a way to save costs on your equipment needs.

Should your plans call for special equipment entirely, let Pfaudler engi-

neers design and build it of the alloy best suited to withstand your operating conditions. Sound design and workmanship are important factors in Pfaudler built equipment. A pioneer in the fabrication of stainless steel, Pfaudler has made many contributions to the technology of welding alloys. The type of custom-built equipment Pfaudler has fabricated is indicated in the column. Whether your specifications require high polish or mill finish, you are assured expert workmanship.

Bulletin No. 823 gives detailed descriptions of Pfaudler's standard stainless steel equipment and many of the custom-built units. A copy is available to you upon request.



Glass-Lined Steel Equipment: Where acid corrosion and product contact with metal must be avoided, specify Pfaudler Glass-Lined Steel Equipment. It is resistant to all acids (except HF) in any concentration and at high operating temperatures and pressures. Pfaudler Glass-Lined Steel Equipment is available in standard and custom-built units. Catalogs 810, 817, 828 and 829 will interest you.

Pfaudler Glass-Lined Steel Chlorinating Column furnishes the high resistance to corrosion that protects reagents and equipment. Built to withstand 125 PSI Internal Pressure, 50 PSI Jacket Pressure.



THE PFAUDLER CO., Rochester 4, N. Y. Branch Offices:
330 West 42nd St., New York 18, N. Y.; 111 W. Washington Ave., Chicago 2, Ill.; 1325 Howard St., San Francisco 3, Calif.; 455 Paul Brown Blvd., St. Louis 1, Mo.; 7310 Woodward Ave., Detroit 2, Mich.; 1318 1st Nat'l Bank Bldg., Cincinnati 2, O.; 1228 Commercial Trs. Bldg., Philadelphia 2, Pa.; 751 Little Bldg., Boston 16, Mass.; 1034 Washington Bldg., Washington 5, D. C.; Box 982, Chattanooga 1, Tenn.

Pfaudler

THE PFAUDLER CO., ROCHESTER 4, NEW YORK
ENGINEERS AND FABRICATORS OF CORROSION RESISTANT PROCESS EQUIPMENT
Glass-Lined Steel . . . Stainless Steels . . . Nickel . . . Inconel . . . Monel Metal

When inquiring specify CP A3414 . . . see information request blank, pgs. 2-3

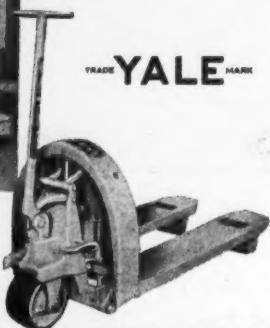
TO THE MAN
WITH A LOAD
ON HIS MIND



If you're the man who has the job of watching production costs you're undoubtedly interested in materials handling; so here's a suggestion — use Yale Hand Lift Pallet Trucks.

Once you've discovered how much they speed the handling of products, lessen worker fatigue and lower costs, you will have a load off your mind. Write today for details.

TRADE YALE MARK



THE YALE & TOWNE
MANUFACTURING CO.
4530 Tacony Street
Philadelphia 24, Pa.

When inquiring specify CP A3415 — see handy form pages 2-3

Over 400,000 Sold



- Quicker Heating
- Small Size
- Light Weight
- One Moving Part
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Sold by more
than 100 Mill
Supply Distribu-
tors throughout
the U.S.A.

See your supply house or write for Catalog T-1739.
YARNALL-WARING CO., 125 Mermaid Ave., Phila. 18, Pa.

YARWAY

IMPULSE STEAM TRAP

When inquiring specify CP A3416 — see handy form pages 2-3

Page 4

CHEMICAL PREVIEW

Edited for Production and Laboratory
Men in the Chemical Process Industries

VOL. 9

JANUARY-FEBRUARY, 1946

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Steps Saved For "Hood" Engineers

Temperature-detecting Thermohms like that (arrow) in the above milk chest (cold storage room) report chest temperatures to a Micromax Recorder located conveniently near power-house valves, saving "a thousand steps an hour" for H. P. Hood & Sons, Boston dairy firm. The accurate Micromax record helps maintain correct refrigeration, cuts down on spoiled stock and wasted fuel resulting from off-temperature conditions.

More information in Catalog N-33C, sent on request.



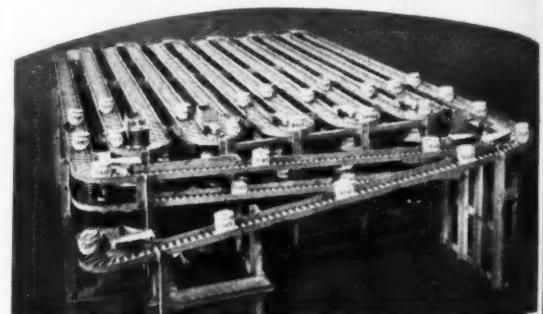
LEEDS & NORTHRUP CO., 4995 STENTON AVE., PHILA., 44, PA.

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MEASURING INSTRUMENTS • TELEMETERS • AUTOMATIC CONTROLS • HEAT-TREATING FURNACES

JH Ad N-33C(9h)

When inquiring specify CP A3417 — see handy form pages 2-3



UNUSUAL HANDLING PROBLEM

SOLVED BY A-F CONVEYORS...

THIS unique Alvey-Ferguson Conveyor System was especially designed and built for a large packing plant to facilitate cooling of their product as it is being moved from packaging machines to warehouse. If you have a handling or "indoor transportation" problem, A-F Engineers, backed by 45 years' experience, can help you solve it. Write, without obligation, today.



THE ALVEY-FERGUSON CO.
12 Disney St., Cincinnati 9, Ohio
Offices in Principal Cities



When inquiring specify CP A3418 — see handy form pages 2-3

CHEMICAL PREVIEW



Cover *Pictures*

The cover illustration of this issue of Chemical Preview shows the installation of a whip in a frothing machine which is typical of the units which are used to inject air into liquid latex to give the product its porous qualities. Other illustrations showing additional equipment used in making latex foam products for consumer markets are shown on page 108.



How To Use This Issue

If you are particularly interested in a specific type of product, turn first to the Directory of All Products in This Issue on pages 119 and 120. Here is an alphabetical listing of every product, whether it is featured editorially or in the advertising.

Then, to make sure you keep abreast of latest developments, perhaps something you have heard nothing about, you'll want to browse through the rest of the pages. The Editors have searched far and wide to bring you this comprehensive Preview of product developments of help to you in your chemical processing work. Thus, they save you time, enable you to keep posted with a minimum of effort. When you find an item that interests you particularly, and you'd like more information on it, use the handy information request slip between pages 2 and 3. Just check the item that interests you, fill in your name and address and send this slip to the publishers. The information will come to you promptly.



How To Get This Magazine Regularly

Subscriptions to this magazine are NOT SOLD. Its circulation is restricted to men who are actively engaged, in responsible capacities, in chemical processing plants. You can receive it free of charge simply by sending your request to the publishers on your company letterhead and telling them of your connection in your chemical processing plant, if you are a chemist, engineer or executive. Your request subscription will start soon thereafter. There is no charge or obligation for this service.



Have You a New Product?

If you have recently developed a new or improved product, a piece of laboratory or plant equipment or a new material, of specific interest in any line of chemical manufacturing . . . send it to our editors.

Through CHEMICAL PREVIEW'S editorial pages they will introduce it to this great field . . . with more than 25,000 copies of this publication covering every plant. This service costs you nothing and there is no obligation. Write — The Editors, CHEMICAL PREVIEW, 737 North Michigan Avenue, Chicago 11, Illinois.

TWO GREAT MIXERS!



Two mixers, each engineered for specific fields of application—both way ahead of the field in modern improved design, incorporating the Porter self-sealing shaft device for quick repacking from the outside.

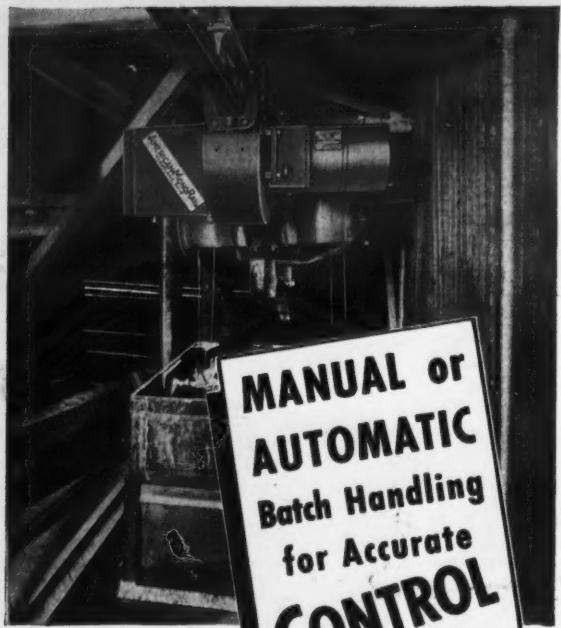
Meet us at the Chemical Show, Booth 256-7, Grand Central Palace.

H. K. PORTER COMPANY, Inc.

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When inquiring specify CP A3419 . . . see information request blank, pgs. 2-3



American MONORAIL Equipment

furnishes an ideal system for handling batch between process. It assures control using scales in the system or accompanying carriers. Jolt-free ride will not cause segregation of particles, an important feature when batch must be uniformly mixed.

To insure the quality of your finished product, install American MonoRail Overhead Handling Equipment. Our engineers will gladly show you how your product can be carried at the lowest possible cost and the highest possible efficiency.



NO OBLIGATION... Write Today!

THE AMERICAN MONORAIL CO.
13109 Athens Ave. Cleveland 7, Ohio



When inquiring specify CP A3420 — see handy form pages 2-3

Page 6

New Solutions of Plant Problems

The solutions here given are selected because of their ideas in the application of available equipment or materials to overcoming certain tough plant problems. Many of these suggest basic ideas applicable in kindred or very different problems of process production.

Low Pressure Vapor Phase Heat Transfer Medium

Fills gap between high pressure steam and 450-725° F. medium

Problem — Industrial demand for low-pressure heat transfer system for use below the 450-725 degree F range with accurate control, efficient heat transfer and low pressure. This has been especially desired by numerous industries processing in the 300-500 degree F range and includes various types of food producers.

Solution — A heat transfer medium in the 300-500 degree F range is available in Dowtherm E and providing the same advantages as Dowtherm A. The latter has long been used successfully in high-temperature, low pressure heat processing and includes accurate heat control for many processes at temperatures well below the boiling point.



Heat transfer medium provides uniform control . . . system fully automatic

Its maximum benefit, however, has always been realized in the vapor phase. The precise temperature control and high efficiency were not available to operations below 450 degrees F, being achieved only with a condensing vapor. Dowtherm E provides for such requirements. It consists of treated orthodichlorbenzene specially stabilized for heat transfer use. Extensive tests indicate it is chemically inert to all metals, commonly used in heat transfer systems and accessories. Like Dowtherm A, the new fluid requires special equipment designed for its use, of Dowtherm A equipment properly modified. (Dow manufactures no such equipment but furnishes names of competent manufacturers.) One of the main features of Dowtherm E is that it provides vapor phase heating in temperature range indicated above that even at 500 degrees F do not exceed 72 ± 1 sq. inch gauge. The advantage of such heat transfer medium is found in the application of Dowtherm A by a middle west processor of vegetable oils faced with the problem of frequently starting up and shutting down a 4,000,000 B.t.u. per hour system. In addition to accuracy of temperature control, this manufacturer had to have economy of operation combined with the flexibility of intermittent operations. Dowtherm fulfills these exacting requirements. Also interesting is the fact that over a four year period, only one drum of fluid replacement was required to maintain the operating level in this system. Another application of interest is the use of Dowtherm

(A) by a culvert manufacturer. The problem involved the continuous control of heat in a 20,000 gallon storage tank and in two 6000 gallon tanks used for dipping of drainage pipe and culverts in asphalt at 390° F. Fire hazards due to high inflammability of hot asphalt, were eliminated by employing the Dowtherm indirect heating method instead of open flame. Much more uniform heat control was obtained with a fully automatic system which was less expensive to operate. Complete information on Dowtherm heat transfer medium in the new "E" form on request.

DOW CHEMICAL CO., Dept. CP, 6000 Main St., Midland, Mich.

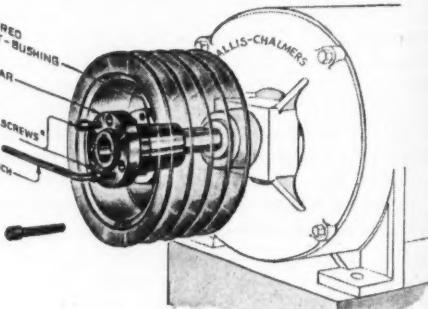
When inquiring specify CP A3421 — see handy form pages 2-3

Telescoping Volumetric Filler For Dust Free Packaging

For paper, metal cylindrical, rectangular containers; handles 100 packages per minute

Problem — Avoiding waste and dust in the packaging of free and non-free flowing products: cleansers, bowl cleaners, flake lye, drain pipe openers, soot removers, etc.

X-Ray View OF NEW "MAGIC-GRIP" SHEAVE



Fastest mounting and demounting sheave on the market, the new "Magic-Grip" costs you nothing extra.

- Save man-hours, downtime. "Magic-Grip" sheave locks to shaft in 1 quick operation!
- Assure smooth-running action, increase bearing life through "Magic-Grip" design.
- Change sheaves easily. New type tapered split bushing does away with all forcing.

Free — Send for B6310 Now!

ALLIS-CHALMERS MILWAUKEE-WIS.

When inquiring specify CP A3422 — see handy form pages 2-3

CHEMICAL PREVIEW

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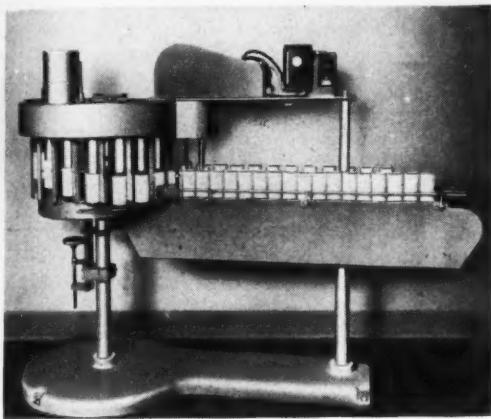
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New Solutions

Solution — To meet such requirements an improved package filler that employs a telescoping action has recently been introduced. Cylindrical containers, paper or metal, cans or rectangular cartons are raised onto the filling tubes of this telescoping volumetric filler, and then lowered in one continuous filling operation. The product is eased into the containers as they are lowered and discharged.



Filler for free, non-free flowing products

from the machine. The unit has parallel inlet-outlet conveyors and requires a floor space of only 6x2½ feet. This internal, close contact action prevents dust and loss of material. The filler handles up to 100 packages per minute or it can be built for even higher speeds. Further details and information concerning individual problems with specific materials on request.

J. L. FERGUSON CO., Dept. CP, Joliet, Ill.

When inquiring specify CP A3423 — see handy form pages 2-3

Data on Uses of White Oil and Other Refined Petroleum Products in Soaps, Polishes

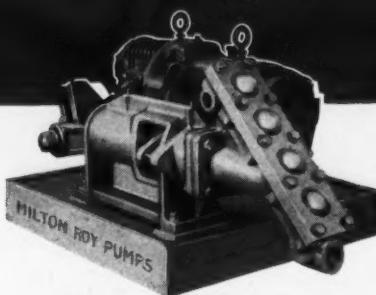
A series of technical data files on specific uses of refined petroleum products has recently been issued. These data files cover uses of these petroleum products in various industrial fields. Subjects include manufacture of soluble cutting oils, pine oil disinfectants, anti-freeze alcohol, processing of plastics, rubber and paper, as well as utilization with Cottrell Precipitators in gas purification and sulphuric plants. Other files include data on various petroleum products for use in the manufacture of household type insecticides, automobile and furniture emulsion polishes, cattle sprays, solvent cleaners, summer spray emulsions, dormant spray emulsions and corn earworm oils. Typical of the data furnished in each individual application is that found in the file on white mineral oil for soaps, super-fatted. It includes a brief discussion of what constitutes super-fatted soap contrasting older methods with the more modern procedure which entails adding substances to neutral soap base after it has been completely saponified. The advantages of super-fatted toilet and shaving soaps are enumerated as producing lather that is closer and possessing smoother texture; freedom from irritating harshness, more plastic and more easily milled. The economy of white mineral oil is emphasized and its use in place of semi-refined oils discussed. Any inquiries should specify the subject desired or on the type of product manufactured.

L. SONNEBORN SONS, INC., Dept. CP, 88 Lexington Ave., New York 16, N. Y.

When inquiring specify CP A3424 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

MILTON Roy Step-Valve PUMPS

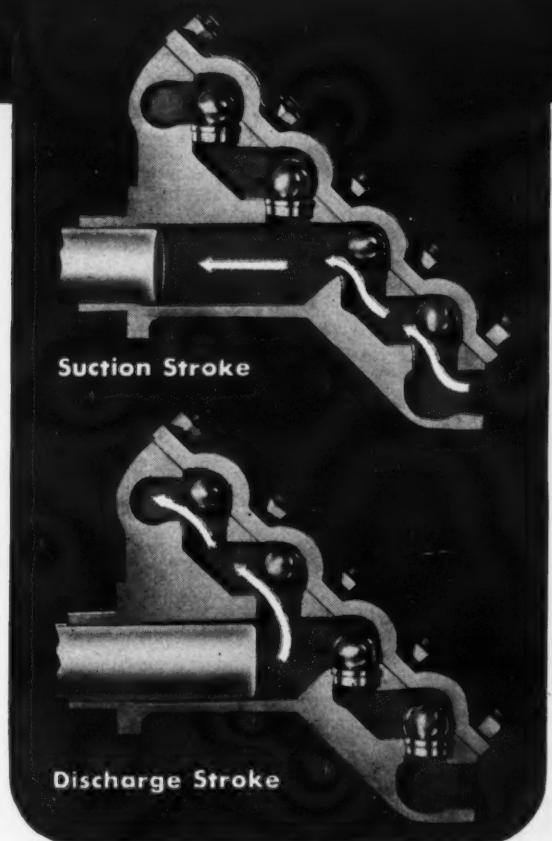


Particularly Well Adapted for Handling

- Viscous Materials
- Crystals or Fibres in Suspension
- Slurries
- Food Products

Note how the double-ball checks in this Milton Roy Step-Valve climb high out of their seats . . . how the flow of the pumped liquid is in an almost straight line under, not around, the ball checks.

This streamlined flow has a self-cleaning action. Flow resistance and slippage are minimized. High and reproducible volumetric efficiencies are assured. An exact volume of liquid is pumped at each and every stroke of the plunger. Note also that the discharge of air or gas from this valve must be instant and complete . . . air pocketing is impossible. Also that even if the first ball-check may be temporarily held off its seat the second check must continue to function . . . thus eliminating "orifice action" and wire-drawing. Note, too, how readily accessible the entire interior of this Step-Valve is, simply by the removal of the single cover plate and without disturbing intake or discharge piping.



The above advantages are basic, exclusive with Milton Roy Step-Valve design. They make it possible for these pumps to handle extremely viscous materials, tars and asphalts, textile fibres in suspension, acid sludges, etc. For handling such materials against negative differential pressures outside spring-loading is available.

Milton Roy Pumps are available in all metals that can be cast or machined, also in transparent plastics; for practically all chemical services; for pressures up to 20 thousand pounds; in capacities up to 1300 gph (Simplex) and 2600 gph (Duplex). More details on request.

MILTON Roy PUMPS



1310 E. Mermaid Ave., Chestnut Hill • Philadelphia, 18, Pa.

When inquiring specify CP A3425 . . . see information request blank, pgs. 2-3

New Solutions

To help you solve THE PRODUCTION PROBLEM

JONES WORM-HELICAL SPEED REDUCERS for vertical shaft drives

• These machines fill a long felt need for double reduction units of the fully enclosed type to be used for agitators, mixers, ore roasters, bending rolls, etc., requiring a vertical shaft drive. Built in standard ratios in various types of assemblies ranging from 40 to 1 to 250 to 1 for all common motor speeds and a wide range of horsepower ratings. Jones Bulletin No 75 covers complete details.



JONES HERRINGBONE SPEED REDUCERS

• Jones Herringbone Speed Reducers are built in single, double and triple reduction types with a large range of ratios and ratings making it possible to fulfill all ordinary requirements by the selection of standard units.

All these reducers have heat treated gears, ground shafts and are mounted with anti-friction bearings throughout.

Catalog No. 70 contains 128 pages of detailed information on the application of these speed reducers.



"JONES DRIVES FOR INDUSTRY"

is the title of a 16-page bulletin that may be helpful in giving you a broad picture of the Jones products, engineering services and manufacturing facilities that are available.

Just ask for Bulletin No. 80

W. A. JONES FOUNDRY & MACHINE CO.
4455 Roosevelt Road, Chicago, Illinois

HERRINGBONE • WORM • SPUR • GEAR SPEED REDUCERS • PULLEYS
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES • ANTI-FRICTION
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

When inquiring specify CP A3426 . . . see information request blank, pgs. 2-3

Inter-Communicating Dial System Coordinates Plant Operations

Control switchboard clears messages from substations; units operate like dial phone

Problem —

Plants in practically all processing and production fields seek simplified, rapid, fool-proof means of communication for inter-plant and other services. A desirable goal in plant direction

is more centralized and rigid production control coordinated with such other related activities as time control, cost control, materials control, employee control and inventory and shipping controls.

Operator at central switchboard clears calls to and from all departments.

Solution — A new, voiceless intercommunication control known as "Temporator" brings all various plant activities under complete central control. The system consists of a central control board and sub-stations. (See illustrations). Communications are dialed the same as a dial telephone. Large numerals and letters instantly appear simultaneously on the sub-station dispatcher and at the central control board. Symbols identify each production, operation, material, employee, order, lot, part number, etc. The communication can concern beginning, stopping, ending of any job; identify worker (in and out clock number). Work schedules may be interrupted or rearranged almost instantly; notification may be given of impending delays; request for instructions may be quickly transmitted. At the central control board a constant flow of production and other con-



Sub stations like this are placed in various departments

trol figures become instantly available for costing, extending, posting inventory. The operator at the central control board requires no more skill than the average regular telephone operator. The ability to keep records is useful, however, since it may be desirable to have the operator aid in costing and extending control figures. The operator receives and transmits all messages and reports and communications to and from as many sub-station dispatchers as may be required to control an entire plant area. The Temporator is adapted in whole or in part to any size organization. It is installed without interfering with present plant layouts. The sub-station dispatchers may be located throughout the plant for the utmost accessibility to all workers. Complete details of operation and the multiple advantages of the Temporator in individual plants depend upon the conditions and operations that prevail. As conditions vary so widely, plant sur-

New Solutions

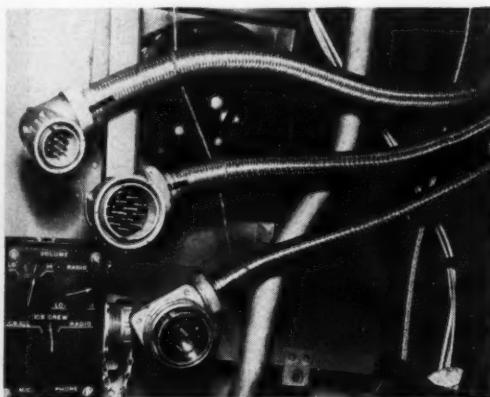
vey is essential. This makes it possible to "blend" the Temporator and the existing plant set-up.
Results — Eliminates local timekeeping; stops shop-chasing and foreman interruption; releases foremen for inspection work; cuts clerical cost; reduces shop paper; (many small companies can almost eliminate paper control); gives indirect labor intelligent supervision; eases task of scheduling and planning clerks. The Temporator furnishes a positive control over inspection, idle machine time, shipping, planning. The equipment itself is inexpensive to operate and maintain. (Literature will be sent on request.)

SIMPLEX TIME RECORDER CO., (Temporator Div.)
47 Lincoln St., Gardner, Mass.

When inquiring specify CP A3427 — see handy form pages 2-3

Method Simplifies Installation of Electronic Equipment Cables

Permits operator to know definitely which way wires flow, even before plug is attached



INDICATING MARKS LOCATE CABLE

Problem — Installing and accurately positioning electronic equipment inter-connecting cables and avoiding cable failure and consequent electronic equipment trouble.

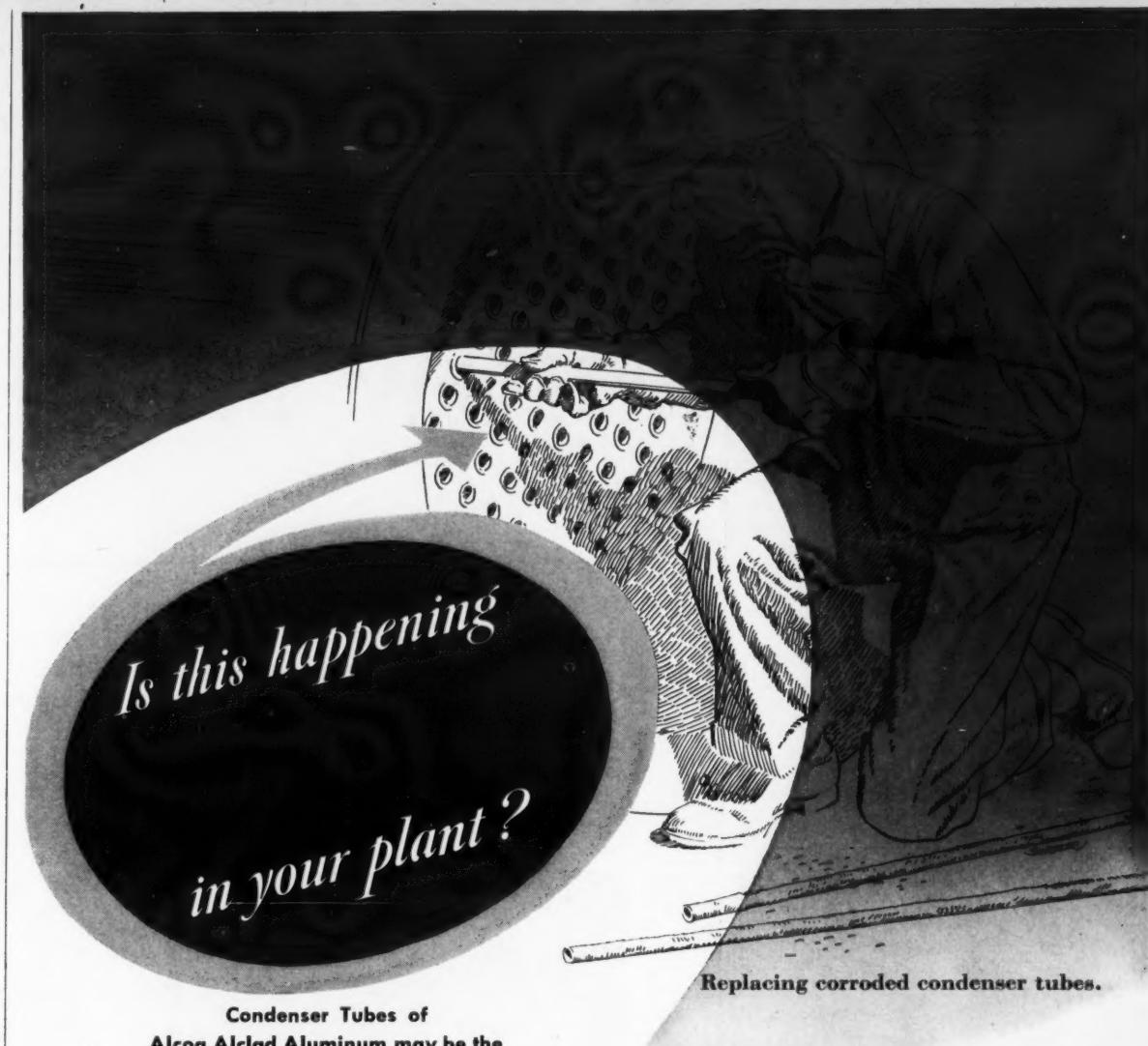
Solution — A solution is offered in a new procedure in which two indicating marks are painted on each cable which locate the cable with respect to the nearest structural clamp, thereby accurately determining the location of the connector in the plane; also establishing the orientation of the right angle connectors, which eliminates twisting and possible breaking of wires when the cable is later connected to the equipment. The indicating marks are applied to the cables prior to the installation of any wires by means of a jig. One of the most important features is that the wire flow is established once and for all at the assembly point.

Results — With this method the operator always knows definitely which way the wires are to flow, even before the plug is attached. Prior to the adoption of the indicating system, operators did not have such information and wires were sometimes kinked or otherwise damaged within the cable. (This procedure was worked out by engineers of the tool division of the company named below.)

GLENN L. MARTIN CO., Dept. CP, Baltimore, Md.

When inquiring specify CP A3428 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946



Replacing corroded condenser tubes.

Condenser Tubes of
Alcoa Alclad Aluminum may be the
answer to your corrosion problems

The idea's not new. Condenser tubes of Alcoa Aluminum are already employed in all manner of processing plants. The aluminum safeguards product quality. And it offers high resistance to the attack of corrosive cooling waters and of materials being processed.

Now, a new development in tubing is offered — Alcoa Alclad — strong aluminum combined with a highly protective interior coating of

aluminum. An even greater number of gases and liquids can be handled by aluminum condenser tubes than before.

Why not try aluminum tubes in one of your condensers? In addition to being long-lived, tubes of Alcoa Alclad are surprisingly low in first cost. See our nearest sales office or write ALUMINUM COMPANY OF AMERICA, 1731 Gulf Building, Pittsburgh 19, Penna.

ALCOA ALUMINUM



When inquiring specify CP A3429 . . . see information request blank, pgs. 2-3

New Solutions

Flexible Pipe Couplings
Require No Wrenches
Special Tools

*Only three parts: top, bottom casting
and wedge key; sizes 1 $\frac{1}{4}$ to 16 inches
for steam, gas, oil, water lines*

Problem — The various pipeline coupling operations encountered in processing, heavy industry, petroleum, mining, construction and related fields prompt interest in methods affording greater speed, economy and flexibility. Quick, dependable means of repairing leaks and simplified release of plugged and frozen lines are also important factors in pipeline coupling procedure.

Solution — Faster coupling of pipe at lower cost and with greater flexibility is offered in flexible pipe couplings known as "Presto-Lock" Couplings, made in 11 sizes from 1 $\frac{1}{4}$ " to 16". An important feature is that they can be used with any plain end pipe without threads, grooves or flanges. No wrenches or special tools of any kind are required in assembly. Only a hammer is



Pipe coupling castings and wedge key

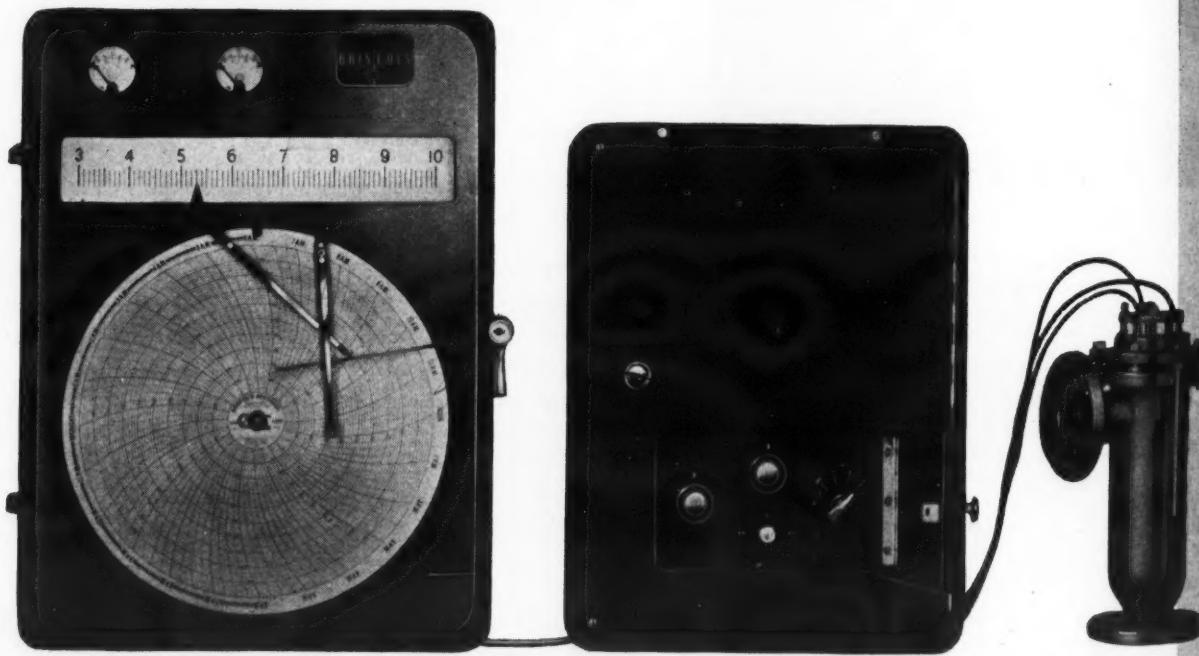
needed to tighten wedge keys after the two sections are fitted over pipe ends and wedge keys have been inserted in the key channels. The procedure is so simple that even the most inexperienced workmen can assemble the couplings in a matter of seconds. The three simple parts are the two corrosion-resistant malleable iron castings and the quick-locking wedge key. Sizes 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ " and 3" are equipped with one wedge key and chain assembly to prevent loss of coupling parts. Sizes 3" to 16" have two wedge keys but no chain assembly. The gaskets which are used on all these couplings have been specially designed to affect a permanently tight seal on all types of pipe lines. Three types of gaskets are available, these being synthetic rubber, neoprene and natural rubber. For all uses except petroleum applications, the synthetic rubber gaskets are recommended. Neoprene gaskets should be used with petroleum derivatives.

Continuous, Accurate,

Automatic Answer to

"HOW MUCH ALUM"?

Air-operated Continuous pH Controller (with exclusive *Free-Vane* principle, the most accurate of all air-operated designs), amplifier unit, electrode assembly. Rugged, vibration-proof construction . . . precision potentiometer measuring system . . . throttling range and automatic reset adjustment.



AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS

**This System That MAKES SURE
in the Paper Industry . . .
Can Do the Same for You**

In this typical continuous stock preparation system, fool-proof control of pH is just a matter of using the right Bristol instruments at the right places.

Most important, of course, is the final addition of alum prior to the fan pump. Electrodes placed in the stock flow to the head box or in the white water coming from the wire pit continuously signal to the Bristol pH Controller how much alum should be introduced.

Once the Controller is set at the proper pH value, that value is automatically maintained ever after, regardless of changes in the character of the stock flow.



BRISTOL

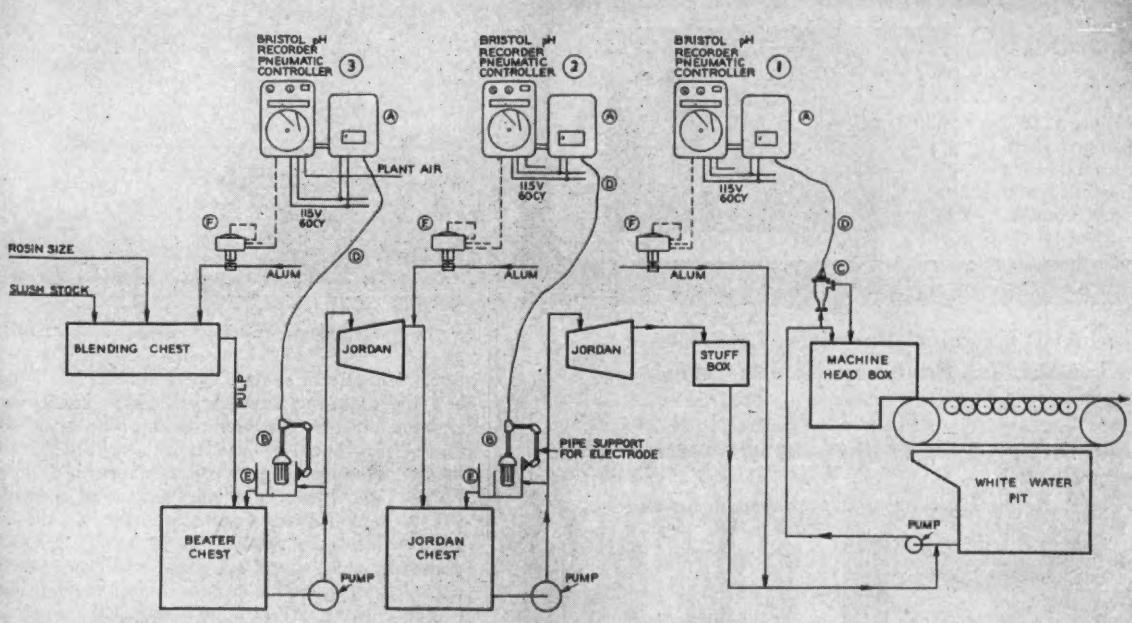
MAKING VARIABLES TOE THE LINE

Wherever variables — in temperature, pressure, flow, liquid level, etc. — threaten quality or costs or necessitate expensive (and not always fool-proof) attention, the use of Bristol instruments will help you MAKE SURE that things are going right.

Bristol's long and broad experience in instrumenting chemical processes suggests you can obtain valuable help from this source. When further instrumentation is taken up in your planning, have a Bristol engineer give you the benefit of his experience.

Bulletin pH 1300 gives information on the complete system illustrated above. Address The Bristol Company, 141 Bristol Rd., Waterbury 91, Conn. (The Bristol Co. of Canada, Ltd., Toronto, Ont. Bristol's Instrument Co., Ltd., London N.W. 10, England.)

141



TYPICAL PAPER MILL
pH CONTROL SYSTEM

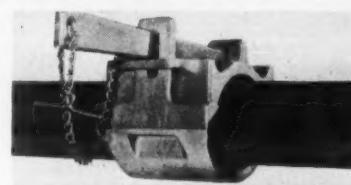
- (A) BECKMAN pH AMPLIFIER
- (B) IMMERSION TYPE GLASS ELECTRODE
- (C) FLOW TYPE GLASS ELECTRODE ASSEMBLY
- (D) CONNECTOR LEADS
- (E) SAMPLE BOX
- (F) BRISTOL SYNCHRO DIAPHRAGM CONTROL VALVE WITH POSITIONER

When inquiring specify CP A3430 . . . see information request blank, pgs. 2-3

New Solutions

Natural rubber gaskets can be supplied for special applications.

Tests indicate the couplings give up to 40 degree flexibility at each joint. In other words, the assembly acts as a sleeve, elbow and ball union at all times. They can be used for repairing any size leak that the coupling will cover and they withstand all normal working pressures of gas, steam, oil



Coupling installed.

and water. With these couplings any plugged or frozen lines can be released immediately by a tap of the wedge key. Pipe can be readily turned if necessary and any section can be removed without affecting the remainder of the line. When not in use the castings can be clamped together and carried as a unit. All coupling parts are salvageable upon relocation of pipe lines and gaskets can be readily replaced when they are worn out. The construction of Presto-Lock couplings insure long-life usage even with the roughest of handling. These couplings are in use today on numerous pipe coupling jobs. Their present applications include oilfields, railroads, municipal, marine, mining, construction and industrial. Industrially they have wide application for maintenance and repair.

Because of wartime use for laying fuel, water and oil lines speedily limits the number of sizes which are available at this time. For the time being, therefore, only 1 1/4", 1 1/2", 2", 2 1/2" and 3" will be available. The 1 1/4" and 1 1/2" inch couplings weigh 3.75 pounds, withstand working pressures of 400 pounds per square inch, flexibility 35 degrees. The 3" inch couplings weigh 14 pounds and withstand 600 pounds per square inch working pressure; degree of flexibility is 35°. 4, 6 and 8 inch couplings weigh 28, 54 and 105 pounds respectively and all have working pressures per square inch (test) of 500 pounds per square inch. Weight, working pressure, flexibility of other sizes in proportion. A 4-page bulletin giving engineering data and complete specifications on all 11 sizes of "Presto-Lock" flexible pipe couplings is available upon request.

DRINKWATER, INC., Dept. CP, 2323 South Michigan Avenue, Chicago 16, Ill.

When inquiring specify CP A3431
— see handy form pages 2-3

Page 11

Why you can be sure of higher CORROSION-RESISTANCE, positive NON-ABSORPTION with LAPP CHEMICAL PORCELAIN

1

LAPP SPECIFIED CLAYS ARE NOT FOUND IN "BACK DOOR" CLAY PITS...

LAPP has gone as far as necessary—even to England—to obtain carefully selected clays that meet rigid LAPP specifications for plasticity, impurity content, acidity and other important properties. And every carload is scientifically inspected at the plant before the clay goes into production.



2



THE SECRET OF EXTRA STRENGTH, GENUINE NON-POROSITY, IS THE LAPP VACUUM PROCESS ...

LAPP Chemical Porcelain is made from liquid clay slip which passes through this vacuum chamber. Here all air, in bubbles and in solution, is boiled out. Subsequent operations are performed without incurring voids, laminations or blebs.

3

THOROUGHLY VITRIFIED BODY PRODUCED IN THE LAPP CONTINUOUS KILN ...

In LAPP'S 380-foot tunnel kiln temperatures exceeding 2250°F are scientifically controlled. The formed clay is slowly brought to the exact molten stage where complete vitrification occurs, fusing the clay body into solid Porcelain, chemically inert and well beyond the degree of vitrification found in ordinary ceramics.



You get all the "natural" advantages of ceramics developed to their highest degree when you install LAPP Chemical Porcelain. Complete corrosion-resistance to all acids (except HF), positive non-absorption, added mechanical strength are plus advantages of LAPP Chemical Porcelain. These are made possible by its extra dense, homogeneous, thoroughly vitrified body.

If you've had trouble with ceramics on a problem that ceramics should solve—it will pay you to experience the difference

in LAPP Chemical Porcelain. *LAPP Insulator Co., Inc., Process Equipment Division, LeRoy, N. Y.*

LABORATORY QUALITY IN PLANT PRODUCTION WITH

Lapp
Process Equipment Division

VALVES • PIPE AND FITTINGS • RASCHIG RINGS • TOWERS • KETTLES • FILTERS • SPECIAL SHAPES

When inquiring specify CP A3432 . . . see information request blank, pgs. 2-3

New Solutions

Neoprene "Go-Devil" Cleans Mains & Pipe Lines Quickly

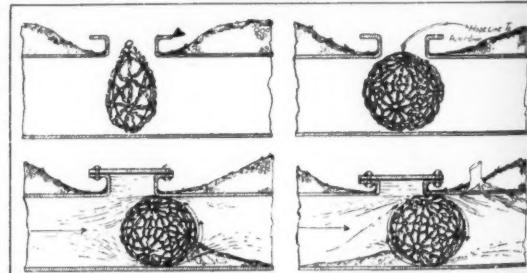
Water main 20" size, 12,800 feet long cleaned by four men in seven days with 19½" hollow crawler

Problem — Cleaning the inside of water mains and oil pipe lines with speed and economy.

Solution — Cleaning the inside of water mains and oil pipe lines is now carried out speedily and economically by means of a unique, efficient piece of equipment called a Rotary Pipe Crawler.

This "Go-Devil," as it is called, comprises a neoprene ball, hollow or solid, which is enclosed in a mesh-like harness of heavy chain. In the water mains, it removes the scaly deposits from the inside of the pipe walls; in oil pipe lines, it scrapes away the paraffin.

To clean water mains or pipe lines, the Rotary Crawler is inserted directly into the line. The pump pressure in the line imparts a forward rotating motion to the neoprene ball. Thus the Crawler is forced through the line and in its passage, scrapes off the deposits from the inside of the pipe. Top deposits are best removed by using an air-filled neoprene ball, and for bottom deposits, a water-filled ball. Because the neoprene ball is compressible, the Crawler will pass through flattened sections of pipe and follow changes in contour along the line. The Crawler Ball is made of neoprene because it must be sufficiently tough to withstand the severe mechanical abrasion. Further, neoprene possesses the necessary oil resistance to withstand the constant contact with oils when the Crawler is used in an oil pipe



Crawler inflated or filled with water cleans pipelines

line. Illustration shows: 1—Insertion of deflated hollow ball and chain mesh covering; 2—Attachment to air pump and inflation; 3—Crawler rotating with chain flaying bottom of pipe line; 4—Crawler filled with water and pulling on bottom—reversing its previous rotation.

Recently the efficiency of the design and construction of a Rotary Pipe Crawler was demonstrated in the cleaning of a 20" water main which was 12,800 ft. long. This 20" penstock which supplied water to a hydroelectric power plant, was cleaned by four men in 7 days using a 19½" hollow crawler. With more experience, the job might have been done in only 2 or 3 days.

To insure thorough cleaning, the Crawler, 2/3 full of water, was run through the entire line four times. Then the Crawler, filled with air only, was put through four more times. On normal runs, the Crawler moved at good speed; through certain sections at about 24 miles per hour. The entire run through the line was made in times varying from 30 to 46 minutes. After the cleaning, the friction head loss was reduced from 35.4 ft. per thousand ft. of line to 16.3 ft., and the peak load capacity of the plant was brought up from 990KW to 1250KW, the original

peaks of the fact, runs, a through operator. For high Originalers are scrapin, CORO California. When Human such of Solutio weighing plant v a centr the cor the par the app mixing control of several into ga under es tanks o many a provide which

TOLEI Where JANU

New Solutions

peak. After two trips through the line, the harness catches of the original chain were worn out by abrasion and had to be replaced with links of $\frac{1}{4}$ " welding rod. As a matter of fact, the chain had to be patched after each of the later runs, and at the end of the job, it was completely worn out. Surprisingly enough the hollow neoprene ball came through in excellent condition and was considered by the operators to be almost as good as new.

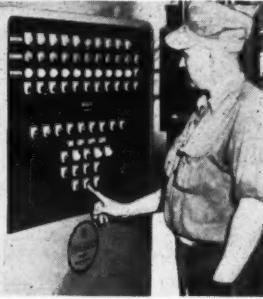
For high pressure oil lines, a solid neoprene core is used. Originally designed for large pipe sizes, 2" and 3" Crawlers are now being used quite successfully for paraffin scraping of various types of small oil lines.

CORONA SHEET METAL WORKS, Dept. CP, Corona, California.

When inquiring specify CP A3433 — see handy form pages 2-3

Battery of Scales for Batching Centrally Controlled

"Human" element eliminated; switches and signal lights mounted on convenient panel



Finger tip control of batching and weighing operations

such operations is found in glass plants.

Solution — Illustrated is an application of automatic weighing and proportioning equipment used in a glass plant where ten scales are electrically interlocked through a central control panel. An important feature of this installation is the manner in which the "human" element is eliminated. The batching process begins with the flip of a switch and the operator can watch the progress of the complete operation by observing the signal lights on the panel. The same principles which makes this particular application possible can also be successfully used in mixing concrete, bread dough, cosmetics and in various proportioning operations. This equipment is used for control of a single critical ingredient or complete control of several. Provision can be made for either rapid or dribble control, and material can be fed onto conveyor belts or into gathering cars. The system can easily be installed under a variety of operating conditions as the scale levers are especially designed to support weigh hoppers, weigh tanks or other load containers which might be used. In many applications, too, the maker's "Printweigh" feature provides printed records of the weights and ingredients, which are kept on file and always available for reference.

TOLEDO SCALE CO., Dept. CP, Toledo, Ohio.

When inquiring specify CP A3434 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946



Muscle Mike CAN with this Brawny Midget of Electric Trucks

All industry is using this Miracle Electric Truck. In its motor is a Muscle Mike . . . a brawny midget of electric power that moves up to 6000 pounds with amazing "touch-of-your-thumb" ease.

Its name is Automatic Transporter. You haven't a handling job it can't lick. One man or girl at the control buttons does the work of three husky laborers. That's two-thirds saving in labor alone. Forget about drudgery and fatigue. It's next to nothing. Take it in and out of tight places that would put even hand trucks to shame. It comes through for you without a whimper.

Thousands of these industry-tested Automatic Transporters have been making sensational performance records in every kind of business. Increased production now makes it available to *you*. But for a while the order will have to be "First come, first served!" Mail the coupon so that we can hurry you the complete facts.



AUTOMATIC TRANSPORTATION COMPANY
Division of The Yale & Towne Mfg. Co., 41 W. 87th St., Dept. A, Chicago 20, Ill.
Please mail me, without cost or obligation, complete facts about AUTOMATIC TRANSPORTER, the Miracle Electric Truck . . . plus proof that it will cut my handling costs in half.

Company Name.....
By..... Position.....
Street Address.....
City..... State.....

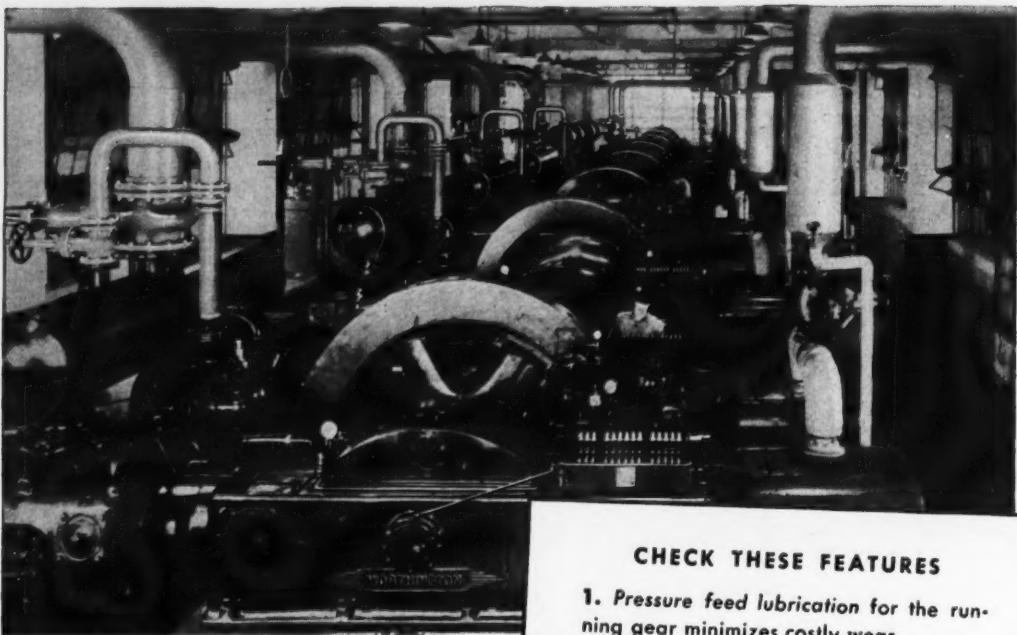
Transporter

A PRODUCT OF AUTOMATIC

Lightens
LIFE'S LOADS

When inquiring specify CP A3435 . . . see information request blank, pgs. 2-3

HOW TO GET LOW COST AIR FROM "NO" COST STEAM POWER



Battery of Worthington OXP Opposed Steam Driven Compressors in a large processing plant.

*...with minimum outage
for adjustment*

In hundreds of plants where large quantities of exhaust steam are needed for heat exchangers and processing, Worthington Opposed Steam Driven Compressors with exclusive Feather* Valves are lowering air costs two ways. Because the steam drive on the compressor serves as a reducing valve on the process steam line, power cost is negligible... and because the composite effect of four Worthington features assures continuous heavy-duty service, maintenance costs and outage time are kept at a minimum.

*Reg. U. S. Pat. Off.

CHECK THESE FEATURES

1. Pressure feed lubrication for the running gear minimizes costly wear.
2. Main bearings and connecting rod bearings are especially designed for pressure feed lubrication. No troublesome, adjustable wedges...no weaving, no breathing of bearings.
3. Operates on steam pressures as high as 450 p.s.i. and corresponding high steam temperatures. Back pressures up to 200 pounds if desired.

These and other features that add up to low maintenance cost, high operating economy, that there's more worth in Worthington.

Write for literature... Publication Dept., Harrison, N. J. Worthington Pump and Machinery Corporation, Compressor Division, Buffalo, N. Y.

WORTHINGTON



55-43



Vertical

Horizontal

Portable

Radial

Gas-Engine Compressors

NO OTHER
COMPRESSOR
WILL
OUTPERFORM
A
WORTHINGTON

When inquiring specify CP A3436 . . . see information request blank, pgs. 2-3

New Solutions

Liquid Coolers Have Increased Capacity-Size Ratio of 50-60%

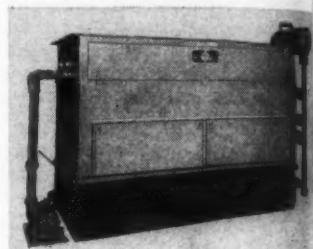
Very compact; rapid cooling; absolute temperature control; sizes 4.7-137 tons refrigeration

Problem — In connection with equipment for furnishing refrigerated cooling water or any aqueous solution for industrial uses, (especially the cooling of water to the lowest possible temperature above freezing for air conditioning or water cooling jackets or as used in milk plant, bakeries and other food industries) desirability of greatly increased capacity to size is indicated. Safe and dependable production of 33 degree water constantly without damage from freezing and also provision for temperatures below freezing are subjects of related interest.

Solution — To meet these more stringent requirements manufacturer has developed new coil arrangements and design to further increase the high capacity to size ratio of the units it had previously developed. (The method used in this manufacturer's equipment is to spray the cooling water over banks of coils in which the refrigerant is expanded. The water falls into a tank and is recirculated independently of the distributing system. Through this procedure closest control over temperatures and efficiency in heat transfer regardless of intermittent cooling operations or variations from maximum to minimum cooling load is secured). This new equipment achieves 50-100% greater capacity over former comparable sizes. It is possible to produce 33 degree water constantly without danger of damage from freezing as the maker has utilized system which is open and does not depend for safety on the proper functioning of the back pressure regulating valve. For temperatures below freezing the coolers may be operated with the maker's "No Frost" liquid solution.

NIAGRA BLOWER CO., Dept. CP, 6 E. 45th St., New York, N. Y.

When inquiring specify CP A3437 — see handy form pages 2-3



Liquid Cooler

Multicompartment Feeder Driven By One Motor and Drive

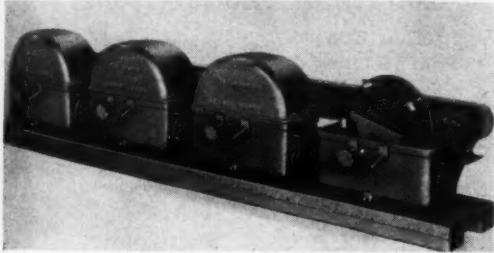
Provides desirable flexibility in distributing system and accuracy consistent with refinement in modern chemical and flotation processes

Problem — Most chemical and flotation processes require the distribution of several chemicals or flotation reagents, each in different quantities, to many points in the circuit. Some of these are normally at several points in the circuit. Centralizing the point of distribution is frequently desirable.

Solution — Such requirements are met by multicompartment feeders and to render this service with the greatest possible accuracy consistent with the refinements in chemical and flotation process an advanced type of multicompartment feeder has been introduced. It is a compact unit

New Solutions

with simple but very accurate means of adjustment. Each compartment is identical, in construction and operation, to single compartment units also developed by this same organization which are in wide use on simplex and duplex feeders. The several compartments are driven by a single motor through a sprocket and chain drive. Each of the compartments may be regulated independently. Feeder cups are bolted to a plate feeder disc. The size and number of cups used may be changed to vary the maximum feeder capacity. A convenient handwheel provides quick, "micrometer" adjustment of feed rate. This multi-compartment feeder provides a desirable flexibility in the distribution system. The same liquid may be fed from each compartment to different points in the circuit, or different liquids may be distributed to the same or different points in the circuit. Feeders are made in three sizes — simplex and duplex as well as multicompartiment. Special feeders to handle corrosive liquids and those which require heating to maintain uniform viscosity are available. (Bulletin — F6-B6 — "Accurate Reagent Control" includes useful data on the methods of feeding liquid and solid chemicals and flotation reagents and describes in detail the features



Four compartment wet reagent feeder, one cover removed; motor seen at right

in this wide selection of feeders.)

Results — Maximum flexibility in reagent distribution system. Very accurate adjustment. As several compartments are driven by a single motor through a sprocket and chain drive initial cost is lower than for an equal number of compartments made in simplex units.

DENVER EQUIPMENT CO., Dept. CP, Denver 17, Colo.

When inquiring specify CP A3438 — see handy form pages 2-3



Electrode Data and Recommendations as to Proper Choice for Mild Steels & Others

"Arc Welding Electrodes," a new 32-page illustrated catalog published by Wilson Welder & Metals Co., Inc., is designed to guide electrode users in the selection of the right electrodes for any specific job. This catalog supplies complete data on the proper electrodes to be used for all types of work on a wide variety of base metals, and describes the approved welding procedures for each application. Electrodes are recommended for use on mild steel, alloy steels, low alloy high tensile steel and stainless steels. Additional sections are devoted to electrodes designed for non-ferrous metals such as aluminum bronze, aluminum, and manganese bronze. Chemical analyses, specifications, and other engineering data are supplied for each electrode. Copies of this booklet may be obtained on request.

WILSON WELDER & METALS CO., Dept. CP, 60 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A3439 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

MOTORIZED

Only 12¢ per day for power

Hydrolectric



PATENTED



None of the straining — tugging — pushing — shoving — that makes horses out of men. All the operator does is guide the truck. Finger tip control — the touch of a button — starts and stops it. It reverses or goes forward with equal ease. Naturally one trucker hauls three to four times the tonnage and management uses "replaced" truckers on other work. A gluton for punishment — a fiend for work — safe — fast — easy to handle, this Motorized Hydroelectric could revolutionize your trucking if you'd give it a chance.

Write today for operational information and learn how to handle loads all day long for 12¢ or less for power.

LIFT TRUCKS
Incorporated
CINCINNATI 14, OHIO

When inquiring specify CP A3440 . . . see information request blank, pgs. 2-3

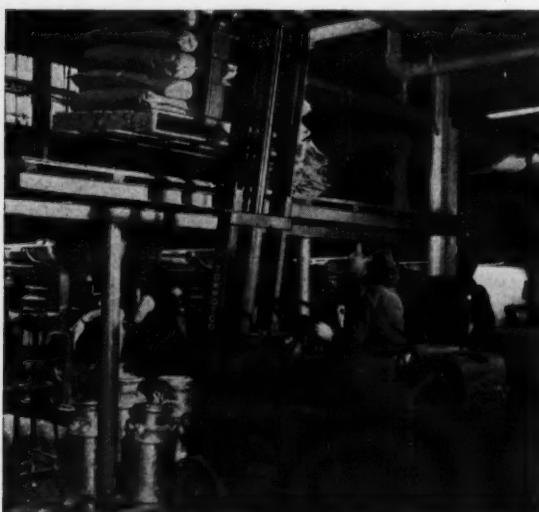


Peerless (formerly Dayton-Dowd) Horizontal Centrifugal split case or solid volute pumps, single and multi-stage are found wherever reliability, dependability and economical operating are desired. Engineered and manufactured with a view to long life, Peerless Horizontal Pumps are available for all classes of pumping requirements for high or low heads. The complete line of Peerless Deep Well Turbine, Hi-Lift, Hydro-Foil (propeller), Sewage, and Household pumps are standard for all Vertical pumping conditions.

The right pump for the right job. All inquiries and specifications processed by trained engineers.



When inquiring specify CP A3441 — see handy form pages 2-3



Efficient handling of materials between operations permits more accurate timing of work schedules, assuring maximum output per man; inventory control is improved, delays and tie-ups are eliminated and production speed is increased to machine capacity. Your handling problem, whatever it may be, can be solved if you'll —

TOWMOTOR
THE ONE-MAN-GANG

Towmotor Corporation, Div. 7, 1226 East 152nd St.

CLEVELAND 10

OHIO

When inquiring specify CP A3442 — see handy form pages 2-3

Page 16

New Solutions

Licensed System for Staining of Wood With Analine Dyes

Brochure, "Insure Your Profits with Chadeloid Stains," explains license system under the "Permanent Stain" patents for the staining of wood with aniline dyes. Forty-nine leading manufacturers in the industrial finishing industry have already taken licenses under these patents. "Permanent Stains" are covered by a series of basic patents involving the use of aniline dyes, ethylene glycol ethers, alcohols, and a coal tar distillate, which acts as a "baffle". These stains are also furnished combined with fillers so that combined staining and filling of wood can be effected simultaneously. Among the developments covered by these patents is the use of aniline dyes combined with high boiling point and low boiling point solvents and a cellulose derivative to control the penetration of the stain into the wood. These stains eliminate the disadvantages of previous wood staining in that they are non-bleeding when covered with lacquer, the color is fast and permanent and the grain of the wood is not raised. Chadeloid "Permanent Stains" are also used for coating plastics, paper, fabrics, leathers, furs, metals, glasses, and other materials, as well as wood.

CHADELOID CORP., Dept. CP, Dayton, Ohio.

When inquiring specify CP A3443 — see handy form pages 2-3

Fittings Stop Pressure Loss on Continuous Gas Furnaces

Eliminate dead spots and provide full flow capacity; joint is strong, leakproof, permanent



Continuous gas oven utilizes welded fittings

to be between the manifold and the outlet end of the valve. A different type of valve was installed but loss was still great.

Solution — "Weldolet" fittings were then used in place of nipples welded into the manifold. This proved a solution of the problem, largely because the funnel-shaped inlet of the fittings eliminates "dead" spots and provides full flow capacity.

Description — These individual stock fittings are designed for making permanent right-angle branch pipe outlets such as tees, crosses, side outlets, etc. Welding outlets, socket outlets and threaded outlets provide for various re-

CASE HISTORY No. 1

No. 1 in a series of factual experiences of a group of American manufacturers with Multiwall Paper Bags.

COST COMPARISON

	200 lb. Barrels	150 lb. Jute Bags	100 lb. Paper Bag
Container Cost	1.20	.31	.13
Container Cost Per 100 lbs.	.60	.207	.13
Labor Cost	.0250	.0250	.0125
TOTAL COST Per 100 lbs.	.6250	.2320	.1425

CLASS OF PRODUCT PACKED

CEMENT	FERTILIZER
CHEMICALS	FOOD ✓
FEEDSTUFFS	MISCELLANEOUS

PRODUCT CHARACTERISTICS

ABRASIVE	GRANULAR
CORROSIVE	HEAVY
DELIQUESENT	HYGROSCOPIC
FLUFFY ✓	LIGHT ✓
FREE-FLOWING	VISCOSUS

ST. REGIS BAG PACKAGING SYSTEMS are made in a variety of capacities, speeds, and manpower requirements to suit specific products and plant layouts. Machines are available in types to meet the special characteristics of a wide range of products, with filling speeds as high as twenty-four 100-lb. bags per minute — with one operator.

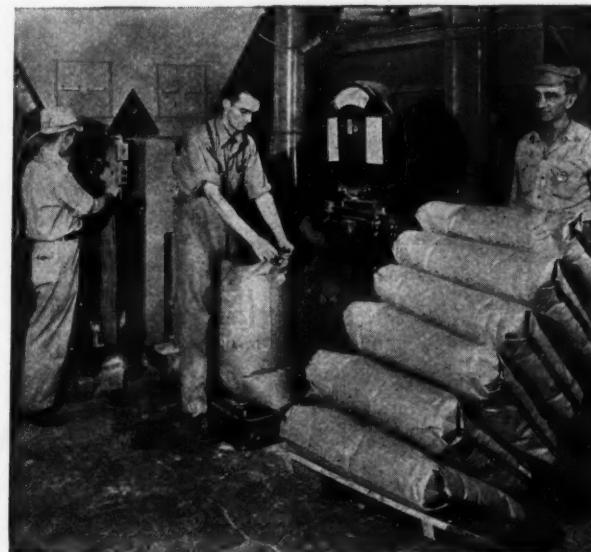
How MULTIWALLS doubled PACKAGING PRODUCTION and halved packaging costs!

Before this company switched to Multiwall Paper Bags, they were using barrels and jute bags. Three men were needed to fill and weigh these cumbersome containers. These three men were also required for the closing operations. Labor costs were high, while production seldom exceeded 9,000 lbs. per hour.

But, after the installation of Multiwall Bag-filling Machines, it was found that one man

could operate 2 filling machines while two other men checked and stacked the bags. This streamline operation results in the packaging of 18,000 lbs. per hour.

In addition, tight, siftproof Multiwalls overcame problems resulting from siffrage, dampness, and infestation. And the compact storage of empty bags provided a substantial saving in valuable floor space.



Left: These 3 men pack, check, and stack 18,000 lbs. per hour in Multiwall Valve Bags. *Below:* Showing the tandem machine arrangement of the St. Regis machines which enables one man to do the bag-filling job.



MULTIWALL
ST. REGIS PAPER COMPANY
TAUCART CORPORATION

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
BALTIMORE 2: 2601 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

Mail this coupon for the complete story

Birmingham Boston Cleveland Dallas Denver
Detroit Franklin, Va. Los Angeles Nazareth, Pa.
New Orleans No. Kansas City, Mo. Seattle Toledo
IN CANADA: St. Regis Paper Co. (Can.) Ltd., Montreal, Vancouver.

I am interested in learning more about the economies of Multiwall Paper Bags. Please send me complete details concerning the "Case History" outlined above.

NAME _____

COMPANY _____

ADDRESS _____

New Solutions

quirements. With the first a right angle branch pipe outlet is made by welding to run pipe using an ordinary Vee or fusion weld. The junction is completed by welding the branch pipe to the outlet of the "Weldolet" fitting. The socket outlets are bored to accept standard outside pipe diameters. Threaded outlets are installed the same as the welding outlets, the threaded branch pipe being screwed into position. Patented construction of fitting compensates fully for loss of strength in run pipe when hole is cut. Making these branch pipe outlets involves only four major steps (1) Layout, (2) Cut Hole, (3) Tack Weld, (4) Weld In Place. The fittings have many applications. They are used in header construction for heating plants, on gas and water mains, spray heads in cooling ponds, sprinkler systems, radiator take-offs in heating systems, etc.

Results — Provide great flexibility in placement of fittings; provide stronger joints, reduce turbulence, lower friction and cut costs.

BONNEY FORGE & TOOL CO., Dept CP, Allentown, Pa.

When inquiring specify CP A3445 — see handy form pages 2-3

Rotogravure Press Units For "Print As You Package" Use

*Quality automatic printing for wrappers of candy,
sugar, gum, etc.*

Problem — Many manufacturers of candies, gum and various similar products require printed cellophane, paper or foil wraps and find cost and production speed a vital factor.

Solution — Complete Rotogravure printing press units are easily attached and synchronized with practically any type of packaging equipment. Used in providing printed wraps for candies, gum, loaf sugar and similar products.

Features — Printing is produced at infinitesimal expense in "printing as you package". The printing is automatic; operation requires no previous printing knowledge, not even an operator whose entire attention is directed toward printing. Packer can perform necessary adjustments and replenish supplies as needed. A single color unit can be purchased with arrangements for later adding units should more than one color be desirable.

Description — A unique, wholly enclosed ink fountain makes possible the use of highly volatile inks which dry in a fraction of a second. In operation, the roll of stock is unwound from a stand and travels through one or more printing units into the packaging machine. Drying takes place as soon as the ink comes in contact with the air. This may be speeded when necessary by blowing air or by the use of heated rollers. Make-ready is completely eliminated. A rubber pressure roller forces the web against the etched cylinder. Solid colors and fine type combined on the same cylinder are printed equally well.

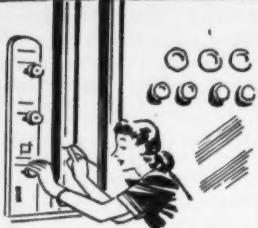
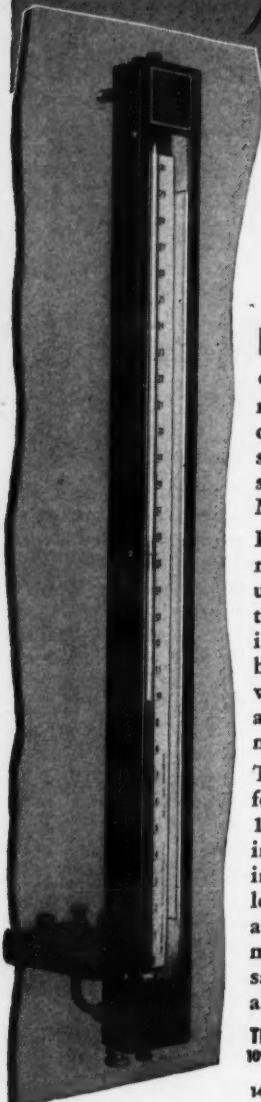
Placing the printing in any desired position on the package is accomplished by means of a compensating roller placed between the printing attachment and the packaging machine. Auxiliary registration controls are not used when packaging and printing are combined in one operation. Many different size wrappers can be produced on a single press, as gravure printing cylinders of varying circumferences are accommodated.

CHAMPLAIN CO., INC., Dept. CP, 636 11th Ave., New York 19, N. Y.

When inquiring specify CP A3446 — see handy form pages 2-3

A WELL TYPE MANOMETER

...for Front-of-Board Mounting



BY MERIAM

To meet the needs for mounting a manometer on the front of an instrument board, we are supplying this popular Model A-324-FB.

It is the well type, direct reading unit. The rectangular well detaches from the body, instrument body is mounted on front of board, the manometer well then reassembled and line connections made from back of board.

This manometer is good for line pressures up to 100 lbs. per in. Available in ranges up to 100"-in steel, brass, or stainless steel construction. An attractive, efficient instrument that gives thorough satisfaction. Ask for Catalog C-11.

THE MERIAM INSTRUMENT CO.
10940 Madison Ave., Cleveland 2, Ohio
WESTERN DIVISION:
1418 Wilson Ave., San Marino 9, Calif.
IN CANADA:
PEACOCK BROS., LTD., MONTREAL

MERIAM
Instruments

ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES

When inquiring specify CP A3447 — see handy form pages 2-3

Page 18

★ INSTRUMENTS of CONTROL

Laboratory Stirring Autoclave

Tilting type super pressure assembly especially convenient when removing viscous materials

Uses — This stirrer type reaction vessel has been designed for use where the contents of the vessel must be stirred instead of agitated by means of shaking.

Features — To facilitate the removal of the contents of the reaction vessel, it is only necessary to remove the head of the vessel, the agitator belt and one bolt, after which the reaction vessel can be tilted on trunnions into required pouring position.

This is especially advantageous in instances involving viscous materials and slurries. It also facilitates cleaning interior.

Description — A complete assembly consists of three main components: (1) A reaction vessel; (2) heating jacket; (3) framework. The reaction vessels used in these assemblies are bored from solid bar stock, and are made of the alloys listed on the following page. The closure is composed of five parts: (1) outside cap that screws onto the body of the reaction vessel; (2) thrust bolts; (3) hardened steel thrust ring that keeps the thrust bolts from marring the pressure head; (4) inner pressure head; (5) gasket of copper or other suitable metal. The cap has two holes for the insertion of a tommy bar for loosening, and has two eyebolts for use in lifting the vessel from the heating jacket. Four vent holes in the cap provide relief in the event of gasket failure or leakage. The head is fitted with one $\frac{1}{4}$ -in. o.d. by $\frac{1}{16}$ -in. i.d. female tubing connection and one thermowell ($\frac{5}{16}$ -in. i.d.) that extends downward from the head two-thirds the depth of the vessel. The stuffing box, agitator, and one pulley are included with the reaction vessel.

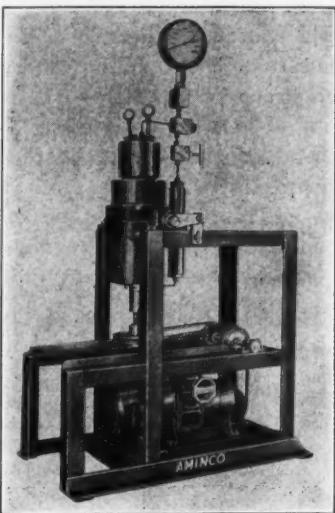
The stirring mechanism consists of a variable-speed-drive motor, a V-belt, a stuffing box, and a propeller-type agitator. The motor provides variable speeds from 100 to 600 rpm, but other speeds are available on special order. The stuffing box is pressure lubricated from a high-pressure oil reservoir, packed with an all-metal ring-type packing, and water jacketed for cool operation. A removable and easily cleaned tray protects the motor from reactants which might spill or drip during the discharging process. The electric heating jackets used with these vessels are wound with two parallel heating elements, and equipped with a three-heat switch for temperature control. Automatic temperature controllers can be supplied at additional cost. The heating jacket will raise the temperature of the reaction vessels to 750° F. in about 100 min-

utes, the power required depending on the size of the vessel. Motor and heater are for operation on 115 v. and 230 v., 60c. single phase. The construction of the heating jacket and the reaction vessel is such that both are free to expand separately under heat without stressing any part of the mechanism. Identified as the $4\frac{3}{8}$ inch series (the reaction vessels have o.d. of $4\frac{3}{8}$ inches) and varying in side dimensions for capacities of 845, 1410, 2960 or 1780 ml. for operating pressures up to 10,000 lb. per sq. in. and at temperatures up to 750 degrees F. Other sizes are available.

The framework is of welded steel construction, and includes a variable-speed motor for driving the agitating mechanism, V-belt, pulley, removable drip tray, trunnion, trunnion bearing, oil reservoir, 0-5000 psi safety pressure gage with solid front and hinged back, safety blowout assembly with two extra discs, wrenches, necessary valves, fittings, $\frac{1}{4}$ -in. i.d. Superpressure tubing, a 6-ft. length of $\frac{1}{4}$ -in. o.d. by $\frac{1}{16}$ -in. i.d. Superpressure tubing, and one No. 406-93 tank connector for connecting to the source of gas supply. Net weight of entire assembly, approximately 360 lbs. Shipping weight, approximately 525 lbs. Dimensions, approximately 21x36x48 in. high. Bulletin 15-2136 on request.

AMERICAN INSTRUMENT CO., Dept. CP, Silver Spring, Md.

When inquiring specify CP A3448 — see handy form pages 2-3



AUTOMATIC HYDROMETER

Continuously Records Densities!

Here's an invaluable aid to operating efficiency in paper, food and chemical plants! The Foxboro Liquid Density Recorder furnishes continuous, accurate records of density in flowing liquids. May be calibrated in specific gravity or any customary scale. Automatic Recording Controllers also are available.

Both instruments are for permanent installation. Function without operator's attention. Accuracy is unaffected by foam. Open records easily read to small unit values.

Write for detailed Bulletin A-264. The Foxboro Company, 190 Neponset Avenue, Foxboro, Mass. U.S.A. Branches in principal cities of U.S. and Canada.

FOXBORO

DENSITY
RECORDERS

Reg. U.S. Pat. Off.

When inquiring specify CP A3449 — see handy form pages 2-3

CHEMICAL PREVIEW

INSTRUMENTS

Phosphate Test Set for Ortho, Meta, Pyro, Poly Determinations

Equipment assembled in standard pH block comparator; only two reagents employed

Uses — This new phosphate test set is designed for the determination of ortho phosphate and for the determination of meta, pyro and poly phosphates that are being used for an increasingly large number of industrial purposes. This outfit is representative of the simplified system of testing apparatus designed by these laboratories, by which chemical tests, that have heretofore been confined to the laboratory analyst, have been simplified to a degree that the field man and the non-technical operator are able to make accurate control tests a part of their daily routine.

Description — The equipment for this compact unit is assembled in the maker's standard pH Block Comparator. Only two reagents are employed in the test and one of these is in the form of small, accurately compounded tablets. The color standards are 10 in number and, by a dilution procedure, they cover concentrations of phosphates from 1 to 100 p.p.m. The interval from 1 to 10 p.p.m. is in steps of 1 p.p.m., and from 10 to 100 p.p.m. the standards are in steps of 10 p.p.m. The range from 1 to 10 p.p.m. is employed when testing polyphosphates while the higher range is useful for regulating the phosphate treatment in boiler water.

In the determination of ortho phosphates a measured sample is diluted with water and is treated with the molybdate solution. The reducing agent, in tablet form, is then added and the resulting color is compared with the color standards. Polyphosphates require conversion to the ortho form which is easily accomplished by heating the sample in acid solution.

LA MOTTE CHEMICAL PRODUCTS CO., Dept. CP, Towson 4, Baltimore, Md.

When inquiring specify CP A3450 — see handy form pages 2-3



Heat Dissipating Unit for Tubes, and Induction Heating

Furnished complete with thermostat control, etc.

Uses — For use in television, radar, short wave radio communication, high pressure mercury lamps, x-ray tubes, induction heating unit and many similar products.

Description — The units were originally designed for the ground, airborne and water services of the armed forces. They are now being manufactured for commercial heat dissipating applications. They are furnished complete with Thermostat control; Thermostatic valves and Flow switch. One of these units for example will dissipate up to 1200 watts with a constant controlled temperature, irrespective of surrounding temperature, within a close heat control range of 2 degrees C. This unit, size 16" x 7½" x 7½" is available in steel, bronze or aluminum. Other models can be built to dissipate up to 5000 watts. Smaller models can, of course, be built where the need is for a smaller unit and the wattage is much lower. In most cases where new equipment is being designed which requires heat dissipation or controlled temperature, a specially engineered unit can be secured to meet requirements.

EASTERN ENGINEERING CO., Dept. CP, New Haven, Conn.

When inquiring specify CP A3451 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946



LINDBERG *Lab* FURNACES

DO EVERYTHING BUT THINK

Efficient, dependable, advanced in design . . . these superb furnaces are an asset to any "lab" or shop. Accurate, dependable temperature control plus every practical provision for operator ease and safety makes them favorites everywhere.

Engineered and built by the leaders in industrial heat treating development, these furnaces give you your money's worth in durability and trouble-free service.

The Lindberg Box Furnace for fast, accurate, economical heats, up to 2000° F. Ideal for metallurgical tests and chemical analyses. Transformer is built-in. "Step-less" Input Controller and Indicating Pyrometer are housed in a separate metal case.

The Lindberg Pot-Crucible Furnace for dual-purpose service at heats up to 2000° F. As a pot furnace it handles salt or lead bath immersion tempering, hardening and annealing, cyaniding and aluminum heat treating. It is equally effective as a crucible furnace for determining critical points of steel, melting base metals, calibrating thermocouples and other useful shop and "lab" jobs.

The Lindberg Combustion Tube Furnace provides heats up to 2500° F. It dependably handles carbon determination of steel by the volumetric method of analysis as well as gravimetric type determinations of all alloy steels including stainless and heat resisting steels. Completely self-contained with transformer, control and pyrometer.

The Lindberg Hot Plate for controlled "lab" and shop heating up to 950° F. Built-in Input Control assures fast, accurate temperature regulation.

Your laboratory equipment dealer has these furnaces available now. He'll be glad to give you prices and full information. See him today.

LINDBERG ENGINEERING COMPANY
2450 WEST HUBBARD STREET • CHICAGO 12, ILLINOIS

LINDBERG

WELL KNOWN THROUGHOUT THE WORLD AS
LEADERS IN DEVELOPING AND MANUFACTURING
INDUSTRIAL HEAT TREATING EQUIPMENT

SOLD EXCLUSIVELY THROUGH LABORATORY EQUIPMENT DEALERS

When inquiring specify CP A3452 . . . see information request blank, pgs. 2-3

INSTRUMENTS

Electronic Finger Automatically Controls Machine Tool Operation

Versatile device has "sense of touch" and performs with utmost accuracy

Uses — For automatic control of machine tools in performance of various operations covering a surprisingly wide range of products as for example from candlesticks to superchargers for aircraft engines.

Description — The vital part of the "anatomy" of this human-like control device is an "electronic finger" which feels its way around the angles and curves of a pattern to control the operation of the cutting tool. This feeler or tracing stylus comprises, in electrical terms, two magnetic bridges, each consisting of two identical magnetic circuits, one pair mounted on an axis at right angles to the other pair. The four magnetic poles are assembled on a diaphragm which is fastened to the stylus, a finger-like projection which touches the pattern or template. In operation, the stylus of the tracing head is moved against the side of the contour on the pattern to be reproduced. The very slight pressure of the feeler against the template causes a deflection of the diaphragm which in turn creates a change in voltage in the coils of the tracing head. This voltage is then carried to the "brain" of the entire device, where the signals from the bridge circuits are amplified many times and "mixed" into what is called a vector signal — a signal which is related to the direction of the pressure on the stylus. This signal causes the stylus to be driven against the template and as the deflection of the stylus increases the vector signal is shifted by a "bender" circuit to cause the stylus to move along the surface of the template with a uniform deflection. The signal from the "bender" circuit is sent into a translator circuit which produces two separate d.c. voltages. Each voltage determines the speed of one of the two feed motors. These voltages are so co-ordinated that the resultant speed of the stylus around the template is constant, regardless of the direction. When a change in contour is encountered, one motor will automatically slow down or speed up just the proper amount to reproduce on the piece of work in the machine the same contour encountered by the stylus on the pattern. If a 90 degree angle is encountered, the direction of pressure on the stylus and the direction of motion is changed by 90 degrees almost instantaneously. Either an inside or an outside angle can be cut in this manner. Because the "bender" circuit of the device provides complete control over the movement of the tracing head, it is impossible for the stylus to stray away from the template. The instant such a tendency occurs, the vector signal automatically forces the head against the pattern, insuring not only a constant degree of accuracy in pattern reproduction, but a continuous cutting operation on the most complicated of parts.

The rapid changes in direction of machine motion are dependent on fast motor control. The thyratron tube (a General Electric development) provides the means for controlling motor speed and direction from the translator circuit signals — and almost instantaneously! So sensitive is the control over the motors, that each can be stopped or started in less than an eighth of a second. Provisions are also made on the master control panel for remote non-automatic operation of the contour equipment. By merely pushing a button, an operator may release the automatic control and take over the operation of the machine himself. With this method, the speed, direction, and control of the motors is handled by the operator through a sys-

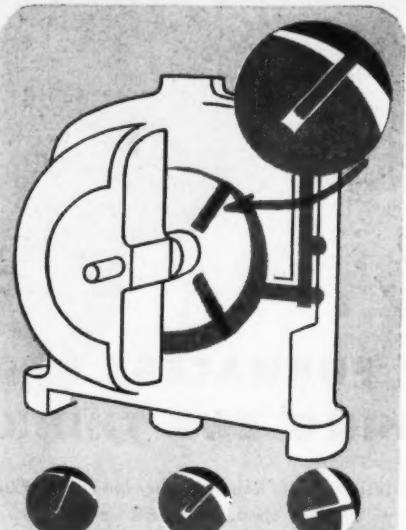
UTTER SIMPLICITY, MASTERFULLY DEVELOPED

... the Gast Vacuum Pumps (to 28 in.), Compressors (to 30 lbs.), and Air Motors (to 1 b.p.)

Gast design shows what can be done by working *WITH* principles instead of settling one design problem by creating two new ones. And Gast manufacturing exemplifies the old truism about doing one thing well.

The result is a line of tightly-priced, service-free vacuum pumps, compressors and air motors of the kind manufacturers appreciate having as original equipment on their machines, and users like to find there.

If you do not use air power but *COULD*, to better advantage, or if you already use air power, Gast, surely, will prove to be your better selection from both the original cost and the performance-and-maintenance standpoints, as it has for increasing scores of makers of a wide variety of machines and equipment. Avail yourself of Gast application experience, have Gast simplicity and faithful performance working for you ever after! GAST MANUFACTURING CORPORATION, 101 Hinkley St., Benton Harbor, Mich.



Vaness: Self-seating . . . self-adjusting . . . springless. Centrifugal force holds them against cylinder wall. They "work without works" . . . Continuous, non-pulsating flow . . . More air per pound of weight, more air per horsepower. . . Forced-air cooling: long life, oil economy, no hot oil odor . . . Automatic shaft seal: no packing, no leaking, no adjusting.

ENGINEERING TEST OFFER —So You Can SEE IF YOU'RE MISSING SOMETHING!

Simply write our Engineering Department and explain the operation you think air might handle, or describe the job air is already doing for you. Our Engineering Department will study your problem, select or design a Gast unit to do the specified work at less cost or at greater efficiency or both. Then, without cost or obligation, the recommended unit will be shipped to you for your performance tests.



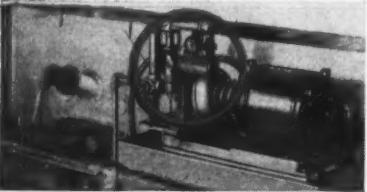
GET THIS IDEA-CATALOG

It not only tells how Gasts are built and all about them, but suggests uses that may not have occurred to you. Write for it; no charge or obligation!

GAST

ROTARY

VACUUM PUMPS • AIR COMPRESSORS • AIR MOTORS



Supplying Air to Industrial Oil Burner



Vacuum Service on a Labeling Machine

When inquiring specify CP A3453 . . . see information request blank, pgs. 2-3

INSTRUMENTS

tem of push buttons and dial controls on the master panel. There is no danger of overcutting the pattern, even manually, for when the stylus touches the pattern, the automatic control takes over and follows the template until the operator again takes control. This manual operation is particularly advantageous in following an outline pattern instead of a cutout template. The operator can then direct the tracing stylus over the drawn diagram in pencil fashion, and the motors will take care of moving the machine to follow the stylus. Extremely simple to operate, G.E.'s new control can be applied to many different types of metal cutting tools and is capable of a variety of intricate cutting operations, which, if done by complete manual operation, would involve many separate directional cuts and endless gage checks.

During the war, machines equipped with this automatic contouring control turned out many complicated parts for jet aircraft engines and turbo-superchargers.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A3454 — see handy form pages 2-3

Diesel Engine Pressure Indicator

For direct reading of every type of engine

Uses — This simplified engine pressure indicator for direct reading of compression and firing pressures of any type diesel engine at any engine speed or rate of pressure rise. **Features** — The instrument is designed so that the counter locks automatically when the maximum pressure in the cylinder shows on the dial. This unique feature makes it practically impossible to make a mistake in reading. Another important practical feature is that only one figure appears in the window of the counter, and this figure represents the actual maximum engine pressure, in pounds per square inch.

Description — The operation of the (Model YRF) indicator is based on the principle of balancing the maximum cylinder pressure by the force of a precisely calibrated helical spring, and then measuring the deflection of the spring. The tension of the spring is increased by rotating the vulcanized handle of the instrument clockwise and decreased by turning it counter-clockwise. Handle rotation is synchronized with the counter. In taking a reading, the handle is turned clockwise until the counter is set slightly in excess of expected maximum cylinder pressure. Then, by rotating the handle counter-clockwise the spring pressure is reduced until the maximum cylinder pressure just offsets the spring pressure. At this instant the latch mechanism of the instrument locks the handle firmly in position, giving signal to read the counter. Successive pressure readings may be taken rapidly, since no venting is required between readings. The precise factory calibration of the instrument is permanent even if it is exposed to over-pressure, shock, or exceptionally severe usage. In recent test it is reported that the indicator was kept on an engine to check firing pressure approximately 500 times within eight hours, yet at the end of the test the calibration was found to be practically unchanged. The indicator may be used to indicate cylinder pressure up to 1700 p.s.i. No adjustments or settings of any kind are required in the field to compensate for instrument characteristics, purpose of test, or engine condition. Complete particulars may be obtained by writing for Bulletin 294.

BACHARACH INDUSTRIAL INSTRUMENT CO.,
Dept. CP, 7000 Bennett St., Pittsburgh, Pa.

When inquiring specify CP A3455 — see handy form pages 2-3

Backed by experience
gained in Industry's
great war-time
achievements

THE BECKMAN IR2 SPECTROPHOTOMETER

BECKMAN INFRARED SPECTROPHOTOMETRIC equipment is widely recognized for its important contributions to the success of the war-urgent butadiene and aviation gasoline programs. This equipment, developed by Beckman engineers working in close cooperation with leading petroleum scientists, made possible for the first time the accurate and rapid process control so essential to full refining efficiency.

It is a significant fact that there have been more Beckman Infrared Spectrophotometers built than all other makes combined. And so successful was the original Beckman Infrared instrument that its far-reaching advancements have now been incorporated into a new and even more versatile instrument, extending the advantages of infrared analytical and control methods to much broader fields of application. This new instrument is the Beckman IR2. Into its design Beckman engineers have embodied the ideas, user-suggestions and first-hand experience gained from the pioneer work in butadiene and 100-octane applications.

There is no other instrument like the IR2, because no other instrument has such a background of valuable experience behind it. It incorporates sweeping advancements in design and construction for maximum versatility, accuracy, speed and convenience. Check over the many unique features. Note how

important these improvements are. Make a point by point comparison with conventional equipment and see how much more the Beckman IR2 provides.

Our technical staff will gladly supply more complete details on the Beckman IR2 instrument. A letter, wire or phone call will place this information in your hands without delay. **Beckman Instruments, National Technical Laboratories, South Pasadena 11, California.**

A FEW IR2 ADVANCEMENTS

HERMETICALLY SEALED

No costly air-conditioning required. Unaffected by humidity or atmospheric contamination.

INTEGRAL AMPLIFIER

No extra amplifier needed for recording. IR2 can be direct-connected to standard recorder.

DIRECT-READING SCALES

Wavelength scale reads directly without curves, charts or computations. Per cent Transmission scale also reads directly.

CONSTANT RADIATION

Photoelectronic regulator maintains radiation constant within 0.1%.

ZERO DRIFT ELIMINATED

Greater accuracy; simpler, faster operation.

FALSE ENERGY ELIMINATED

Negligible stray light effects assure increased accuracy.

GALVANOMETERS ELIMINATED

Beam-modulation, bolometer and electronic amplifier eliminate vibration, temperature and non-linearity difficulties associated with galvanometers.

TEMPERATURE CORRECTIONS ELIMINATED

Entire instrument thermostated.

UNUSUAL VERSATILITY

Light sources, cell holders and other elements are interchangeable for a wide range of applications on gases, liquids and solids.

The above are only a few of many IR2 innovations. Write for full details.

BECKMAN

STRUMENTS CONTROL MODERN INDUSTRIES

When inquiring specify CP A3456 . . . see information request blank, pgs. 2-3

- ★ Weighs only 1 3/4 pounds!
- ★ Sensitive to 2% of scale!
- ★ New Design Features!

HUPPERT PORTABLE PYROMETER

New in design, new in convenience, new in service — the Huppert Portable Pyrometer has departed from the conventional portable Pyrometer specifications to fully meet the needs of today. This novel departure provides complete protection to face of instrument in all resting positions and perfect reading of the scale without neck stretching. Accuracy to 2% of scale. Duo range scale — 0 to 800° and 0 to 1000° F., or 0 to 750° and 0 to 1500° F., or 0 to 1000° and 0 to 2000° F., or equivalent ° C. Special ranges to order. Overall length of instrument, 11". Cast aluminum body sealed against dust and fumes. Durable handle. Rubber legs. Also available as surface type.

K. H. HUPPERT CO.

Instrument Division

6822 Cottage Grove Ave.

Chicago 37, Ill.

When inquiring specify CP A3457 — see handy form pages 2-3



These are the original electric liquid level controls, pioneered by us in 1933. They have no floats — no vacuum tubes — no moving parts in the liquid. They control variations of levels of 1/4" or more, and are not affected by pressures, temperatures, acids or caustics. Relay can be located any distance from the electrode. Special ice free electrodes where necessary.

WRITE FOR CATALOG

New CATALOG 145 contains complete technical descriptions of the many types available, together with wiring diagrams for various installations. Get full information on B/W controls. WRITE FOR YOUR COPY TODAY!

B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

When inquiring specify CP A3458 — see handy form pages 2-3

INSTRUMENTS

Fluoroscope X-Ray Increases Exactitude of Vitamin D Assay

Confirms estimate of tests made on white rats

Uses — The exactitude of vitamin D assay work has been increased considerably thanks to the use of fluoroscopic x-ray (according to a report from the Laboratory of Vitamin Technology, vitamin testing organization of Chicago). **Description** — The fluoroscope (according to Dr. H. J. Cannon, director of the laboratory) is used to confirm the judgment of laboratory workers as to when the desired degree of rickets (bone de-calcification) has been induced in the bones of white rats during a diet deliberately made deficient in vitamin D. (A fluoroscope uses x-ray to excite visible light from a fluorescent screen.) Since calcium salts are partially opaque to x-ray, their absence in the bone is revealed by a greatly-increased white or non-calcified area in the bone examined. The rats are con-



Photo shows viewing box, screen, etc.—in actual use operator wears lead lined gloves.

sidered ready for assay testing when a large section of the upper tibia bone, just below the cartilage at the knee joint, has turned white from rickets and feels spongy to the touch. At this point, 20 rats are taken and are divided into two groups. One group of 10 is fed Government Standard Cod Liver Oil at the known rate of 1 USP unit of vitamin D per day. The vitamin D content of this oil has been determined by the combined reports of assay laboratories throughout the country, and is taken as the standard reference in assay work. The other group of 10 is fed a certain amount of the substance under test, whose vitamin D content is unknown. The dosage on which tests are begun with the unknown is generally an amount calculated by the client to contain 1 USP unit of Vitamin D. The effect of this dosage on the rat bones is then compared with the effect of the standard cod liver oil, after both have been administered for 6 days. At the end of the 7th day (allowing 1 day for the sixth dose to take effect), all the rats are killed and the upper tibia bone is split longitudinally in half. This is stained with silver nitrate to cause the calcified areas to turn back. If the client's estimate is found to have over- or under-calcified the bone in relationship to the effect produced by the cod liver oil standard, further tests are made with revised dosages calculated to produce an effect more nearly like that of the standard.

Assay work is done for a wide variety of companies — manufacturers of fish liver oils, synthetic vitamin D, pharmaceuticals, animal feeds and human foods. The fluoroscopic unit was developed especially for this purpose by General Electric X-Ray Corporation of Chicago, consisting of a low-power x-ray head converted to fluor-

CAMBRIDGE GAS ANALYSERS



Cambridge Gas Analysers provide continuous records, accurate and automatic. No intermittent sampling . . . no chemicals. These Analysers are used for determination of



OXYGEN in flue and stack gases and in furnace atmosphere

CARBON DIOXIDE in flue gases
DISSOLVED OXYGEN in boiler feedwater

HYDROGEN in steam
CARBON MONOXIDE, NITROGEN, ARGON and many other gases can be determined by available Cambridge analysers designed to meet specific industrial conditions.

Cambridge four-point gas analyser provides simultaneous analysis and continuous graphic record of the amount of O₂, CO₂, CO and H₂ in a sample of combustion products.

CAMBRIDGE INSTRUMENT CO., Inc.

3706 Grand Central Terminal New York 17, N. Y.
Pioneer Manufacturers of Precision Instruments

When inquiring specify CP A3459 — see handy form pages 2-3

YOU'RE ALWAYS SURE With A LIQUIDOMETER

Funk Gauge



WRITE FOR
COMPLETE DETAILS

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

THE LIQUIDOMETER CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring specify CP A3460 — see handy form pages 2-3

OHMITE
Riteohm Precision Resistors
Non-Inductive... Pie Wound... 1% Accurate

Ready now... a new, complete line of finer precision resistors! Available from stock in $\frac{1}{2}$ watt and 1 watt units in a wide range of values, in various types of mountings and terminals... or made to order. Includes non-inductive pie-wound vacuum impregnated units... single layer-wound vitreous enameled units... non-inductive pie-wound hermetically glass sealed units. Write today for Riteohm Bulletin No. 126.

OHMITE MANUFACTURING COMPANY
4917 FLOURNOY STREET • CHICAGO 44, U.S.A.

Be Right with **OHMITE**
RHEOSTATS • RESISTORS • TAP SWITCHES

When inquiring specify CP A3461 — see handy form pages 2-3

FINGER-TIP AUTOMATIC CONTROL
with "Anets" LABORATORY CABINETS

Right at your finger tips the choice of temperatures and humidity conditions you desire — closely controlled for precision, testing, processing, etc.

"Anets" Laboratory Cabinets enabled leading manufacturers to maintain the high precision control of fabrication and processing that won them extra stars on their "E" flags.

Write for Bulletin No. 170 describing sizes and models obtainable — also temperature and humidity ranges you need.

- ★ Testing electrical and electronic units and assemblies.
- ★ Incubation, germination, and bacterial culture development.
- ★ Processing plastics, fabrics, metals & wood.
- ★ Fermentation, proofing and processing of food products.
- ★ Weathering, moisture absorption control, package testing, etc.

ANETSBERGER BROS. 3322 Elston Avenue Chicago 18, Illinois

When inquiring specify CP A3462 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

INSTRUMENTS

oscopy by means of a viewing box and screen. The box is tapered as it leads from the eyes so that the view is focused on the small rat. A lead-lined box housing the tube head, a lead-glass pane between the fluorescent screen and the operator, and lead-lined gloves for handling the rat, protect the operator and nearby personnel from x-radiation.

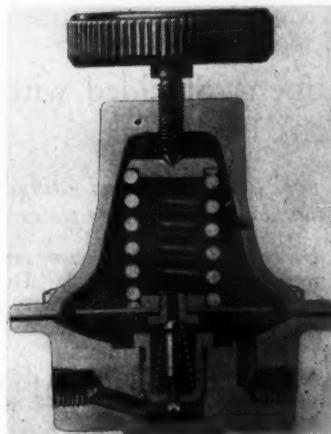
Hitherto, the determination of the proper rachitic condition could be performed properly only by persons possessing the rare skill of determining the degree of decalcification by "feel" of the joint area. Now the increasing volume and scope of assay work can be handled by persons with relatively less skill, since their judgment can be corroborated by fluoroscopic examination.

GENERAL ELECTRIC X-RAY CORP., (Sales Promotion Dept.) Dept. CP, 175 W. Jackson Blvd., Chicago, Ill.

When inquiring specify CP A3463 — see handy form pages 2-3

Regulator For Manual Loading; Used With Pneumatic Instruments

Body and spring housing of forged brass



Regulator mounts inside case
or on separate panel

Uses — Designed primarily for manual loading service in conjunction with pneumatic industrial instruments. This regulator combines a high degree of sensitivity with rocklike stability and freedom from drift errors. On dead end service, this regulator can be adjusted to hold any air pressure from 0-25 lbs. absolutely constant within .05 of 1 lb., regardless of vibration or upstream variation.

Features — Sensitivity and stability are due to the large area, nylon inserted neoprene diaphragm and to the floating design of plug and seat with its complete freedom from guiding surfaces which might become a source of friction due to dirt accumulation.

Description — Compact and close-coupled, it is well suited for mounting inside an instrument case or on a separately mounted panel. Body and spring housing are of forged brass, providing a degree of exterior finish not found in cast brass construction. Plug and seats are highly polished stainless steel, insuring maximum sensitivity, long life and freedom from leakage. All other steel parts are cadmium plated. Regulator is provided with large diameter knurled plastic knob and fine thread screw requiring six or more turns for full range adjustment. Threaded spring housings and two lock nuts permit flush mounting or any thickness of panel up to 1". Body tappings can be had in either $\frac{1}{4}$ " or $\frac{1}{8}$ " standard pipe threads. Finish is dull black enamel. Size, 3" diameter and $4\frac{1}{4}$ " overall height.

CONOFLOW CORP., Dept. CP, 2100 Arch St., Philadelphia, Pa.

When inquiring specify CP A3464 — see handy form pages 2-3

Alnor
PYROCON

the contact
pyrometer
for surface temperature
readings...



The Alnor Pyrocon gives you accurate temperature readings in a few seconds, of liquids, oils, plastic materials, or surfaces, whether flat or curved, stationary or moving. The Alnor Pyrocon movement is a rugged, shock resisting type and is used with any one of eleven types of thermocouples, interchangeable without adjustment or re-calibration. Either rigid or flexible arm, and choice of thermocouples allows meeting any individual needs. Built in several standard ranges, 0-400 deg. F. to 1200 deg. F. Write for descriptive bulletins.

ILLINOIS TESTING LABORATORIES, INC.
420 NORTH LA SALLE STREET • CHICAGO 10, ILLINOIS

When inquiring specify CP A3465 — see handy form pages 2-3

BARBER-COLMAN

**MICRO SYSTEM
FOR
PROCESS
CONTROL**



MICROTHERM

By using a solenoid-loaded contact tongue, with the pull of the solenoid governed by a rheostat on the valve motor shaft, the Microtherm is able to position the Proportioning Valve so as to satisfy exactly any change in demand. Features include simple construction, no relays, and maximum power at all points of valve stroke. "Hunting" is eliminated and the valve is positioned quickly with "micrometer accuracy." Write for Bulletin "CONTROLS FOR INDUSTRY."



PROPORTIONING
VALVE

BARBER-COLMAN COMPANY
1201 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP A3466 — see handy form pages 2-3

Page 23

EXPLOSION-PROOF AUTOMATIC FLOW CONTROL

for liquids
and gases.



★ Do you want a device that in an emergency will instantly and automatically swing into action and cut off the flow of a liquid or gas?

Use the ASCO Solenoid Valve.

★ Do you want a flow to be started instantly and automatically in an emergency?

The proper type of ASCO Solenoid Valve will perform this function, too.

★ Do you want this service on lines carrying explosive or inflammable products?

ASCO Explosion-Proof Valves are designed for this duty.

There are so many places where the Solenoid Valve fits into the refinery picture for automatically controlling the flow of liquids or gases that we suggest you send for our latest illustrated Circular No. 246. If you have the places for these valves already picked out, write us for our recommendations.



We also manufacture a quality line of Automatic Transfer Switches, Remote Control Switches, Contactors and Relays.

Automatic Switch Co.
47 EAST 11th STREET, NEW YORK 3, NEW YORK

1-AS-1

When inquiring specify CP A3467 — see handy form pages 2-3

Page 24

INSTRUMENTS

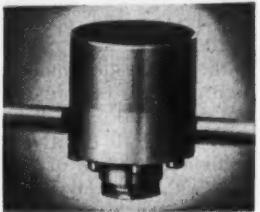
Small Pressure Reducing Regulator

Exceptional capacity; units for gas and liquids

Uses — For handling initial pressures up to 3500 lbs. with adjustable control range from 5 to 1500 lbs.

Features — Weighs less than two pounds and measures roughly $2\frac{3}{4} \times 3\frac{1}{4}$ inches.

Description — Although primarily designed for air and gases, including hydrogen, nitrogen, oxygen, etc., this unit can also be furnished for liquid service. Rugged strength is imparted by stainless steel ports and the homogeneous structure of Duraluminum from which it is made. Unique valve and seat construction was especially engineered for positive dead end shut-off. Operation is instantaneous. Available for $\frac{1}{8}$ and $\frac{1}{4}$ inch pipe size. Full details are contained in Bulletin 940 which is available upon request.



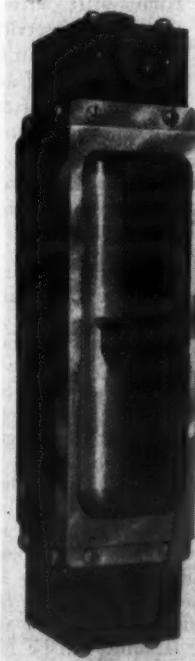
GROVE REGULATOR CO., Dept. CP, 6415 65th St., Oakland, Cal.

When inquiring specify CP A3468 — see handy form pages 2-3

*

Full View Rotameter Shielded with Leak-Proof Enclosure

Design is based on simple square block end fittings fastened together rigidly by heavy flat side plates



Rotameter with
"Safety shielding"

dowels as well as the front and back window frames, are made of stainless steel as a standard material specification.

MEASURES ANYTHING (not containing abrasive solids) THAT CAN BE HANDLED THROUGH A PIPE

FLUIDOMETER Automatic Metering System

• The Fluidometer System is equally accurate on liquids of high or low viscosity, and is adaptable to practically every liquid measuring problem in industry, whether it involves pounds, gallons, barrels or tank car lots. Operation is simple. When the starting button is pushed Fluidometer automatically delivers the predetermined quantity—then automatically resets for the next delivery. If desired, the push button can be eliminated and the system actuated by a timing device.

Write for Bulletin F-42

HETHERINGTON & BERNER INC.
711 Kentucky Avenue, Indianapolis 7



When inquiring specify CP A3469 — see handy form pages 2-3

You can safely run tests
BLINDFOLDED
in a Despatch Oven



Because it contains no off-temperature zones, you can safely place important test-samples anywhere in a uniformly-heated Despatch Laboratory Oven.

Also with the unfailing accuracy in agreement with thermostatic control setting, you can rely upon the dependability of all of the tests you run.

DESPATCH
OVEN COMPANY MINNEAPOLIS 14
MINNESOTA, U.S.A.

Write for
Bulletin 105

When inquiring specify CP A3470 — see handy form pages 2-3

CHEMICAL PREVIEW

INSTRUMENTS

The full-view meter is "safety-shielded" with a full, leak-proof enclosure that thoroughly protects the operator and allows him to read the meter with complete safety.

Description — This meter is available in sizes from $\frac{1}{8}$ " to 4" with screwed or flanged connections. With a metal tapered tube, it can be used for pressures as high as 600# per square inch.

The meter is made in iron, brass, and stainless steel. All metal parts of the brass meter are brass, and all metal parts of the stainless steel meter are stainless steel. In addition, several special materials such as Hastelloy, aluminum, lead, hard rubber, haveg, etc. can be furnished.

The full-view meter can be obtained as a simple flow rate indicator or with remote instrument for recording or recording-controlling-flow rate. Flow totalization can also be included.

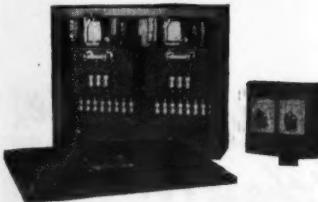
"Safety-Shielding" is obtained by front and back safety glass windows, $\frac{1}{4}$ " thick, held in place by stainless steel window frames, $3/32$ " thick. All surfaces are gasketed to prevent leakage. Additional information regarding this rotameter and its application to specific cases on request.

BROOKS ROTAMETER CO., Dept. CP, P. O. Box B-1217, Lansdale, Pa.

When inquiring specify CP A3471 — see handy form pages 2-3

Repeat Cycle Timer

Dials located on timer or small housing



Timer and small dial housing

Uses — Designed for machinery and process control and very suitable for various applications requiring two adjustable timing periods to run in a continuous cycle.

Features — Control is accomplished

through specially designed snap-action relays which result in extreme accuracy and interchangeability. Each timing period is adjustable from $1/20$ second to two minutes. Interval variations in repeat cycle timing are less than 2%.

Description — This repeat cycle timer (Type 2T15U) is a rugged electronic timer. In providing for applications requiring two adjustable timing periods to run in a continuous cycle this cycle is initiated by either momentary or sustained contacts. Provision for automatic recycling is included. The timer is universal for six maximum time ranges from 1.5 seconds to two minutes for each period of the cycle. Each range is represented by a timing element which is snapped into a clip on the front of the control. The timer may be then set for any interval up to these small maximums by dials which are located either on the timer itself or in a small housing in a more convenient location. Illustration shows timer and dial housing. Specifications:— supply 115 v. AC or DC. Output:— output connections those of a single pole, double throw switch for normally open and normally closed operations. Contacts:— 1000 watts 115 v. — 600 v. AC; 500 watts, 115 v. — 220 v. AC; Actuating Control:— designed so that either momentary or sustained contacts will control timing interval.

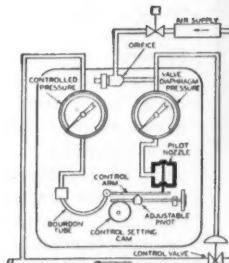
PHOTOSWITCH, INC., Dept. CP, 77 Broadway, Cambridge, Mass.

When inquiring specify CP A3472 — see handy form pages 2-3



Here's a simple, rugged controller that gives you

ACCURATE PRESSURE CONTROL AT LOW COST



MASON-NEILAN REGULATOR COMPANY

1203 ADAMS STREET, BOSTON 24, MASS., U.S.A.

When inquiring specify CP A3473 . . . see information request blank, pgs. 2-3

The Masoneilan No. 2500 Pressure Controller gives plants accurate, dependable instrument control at a price no greater and often at a lower cost than other less efficient methods.

Typical pressure control applications where these controllers are improving quality include — reducing service on primary or auxiliary steam lines, turbine or bleeder make-up, pump discharge pressure control, heating and evaporating systems. The No. 2500 is available for control of pressures between 30 inches vacuum and 500 pounds.

Masoneilan No. 2500 Pressure Controllers are rugged, simple and economical to operate. And although they are relatively inexpensive, they are built to the same high standards of quality materials as all other Masoneilan equipment. Bulletin 2500 gives the entire story. Write for your copy today.

135°F ± 1°F
Through
FOSTER
REGULATION
ENGINEERING



Solution temperatures at 135°F plus or minus 1°F. are maintained in this Borderizing equipment, with Foster Type 34-T Temperature Regulators. They control the flow of steam to the heating coils immersed in the tanks. The work is carried through the tunnel in the background, where it is successively sprayed with solutions, which drain back into the tanks. Close control of solution temperature is essential to continuous automatic operation.

It's an easy matter to select the right temperature regulator, when you have the complete Foster line to choose from. For Foster Regulation Engineering assures the simplest trouble-free installation — by making available a temperature regulator tailored to each type of application—by selecting the one exactly fitted to your needs—and by assisting on sound installation practice.

In the Borderizing installation illustrated, the problem was to hold solution temperatures as close to 135°F as practical without unnecessary complication. The Foster Type 34-T was selected from the entire Foster line because it is a simple basic unit capable of holding temperatures to within 1°F plus or minus. Elaborate layouts and complicated equipment were avoided, because, in this case, the 34-T fits the job.

Foster Regulation Engineering insures satisfactory performance, cuts cost and saves maintenance time.

Foster Temperature Regulators—for steam, air, liquids and gases—are available for pressures up to 450 p.s.i. and temperatures to 300°F. Temperature adjustment range of 110°F and regulation accuracy of ± 1° are available in the line. For complete details, ask for Bulletin 11.

★ BUY VICTORY BONDS ★

FOSTER ENGINEERING
Company
 124 MONROE STREET • NEWARK 1, N.J.

THERE IS NOW A FOSTER VALVE FOR EVERY SERVICE
 1-FE-2

When inquiring specify CP A3474 — see handy form pages 2-3

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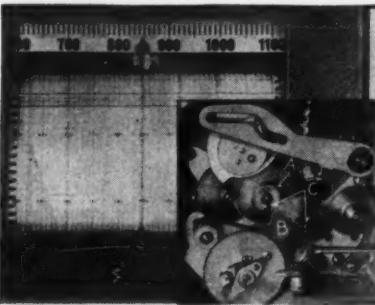
INSTRUMENTS

More Speed for Recorder Charts

Extends industrial use of electronic recorders

Uses — Increase industrial use of electronic recorders is made possible by this instrument manufacturer through stepping up chart speeds of "Electronik Pyro-Potentiometers.

Description — The standard speed electronic recorder, single or multiple point models, incorporate gear changes for speeds 5, 10, 15 and 20 inches an hour. Fast speed electronic models, single or multiple point, have internally mounted gears for speeds of 10, 20, 30 and 40 inches an hour. As shown in the accompanying illustration, the gears are changed by removing screw "C" from gears "A" and "B" and by lifting the gears from the assembly. The new speed gears are then installed and screw "C" is replaced. Complete information on electronic recorders and this particular gear application will be furnished upon request.

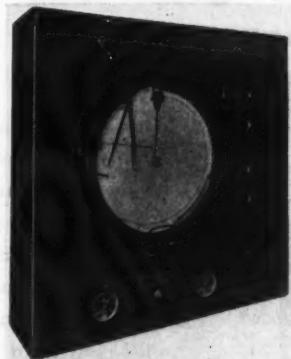


BROWN INSTRUMENT CO., Dept. CP, 5060 Wayne Ave., Philadelphia, Pa.

When inquiring specify CP A3475 — see handy form pages 2-3

Control for Temperature Rate of Rise Completely Automatic

Instrument controls, records all steps of complete process cycle



Cycle Controller

The control is completely automatic, according to whatever schedule is predetermined by adjustments of four setting knobs on the instrument panel.

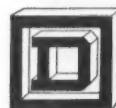
Description — An excellent example of its advantages is found in batch dyeing. The "CycleLog" controller will bring the bath temperature up from any starting point, regardless of daily or seasonal variations, to the desired holding point, and do this at any desired rate of rise from 1-8 degrees F. per minute. It will then hold the bath at exactly the correct temperature for the correct period of

Uses — For batch type processes and other operations where a rate of temperature increase or decrease must be controlled, as well as the actual processing temperature and duration.

Features — The unique function of this instrument is implied in the name adopted for it — the "CycleLog". All the steps of a complete process cycle are controlled and recorded. No time cams or supplementary instruments are employed. The

- Tests without lamps. Positive voltage identification — 110, 220, 440, 550 A.C. 125-250-600 D.C.
- Each voltage shown by different colored band for easy reading.
- Compact — can be carried in pocket.
- 4" insulating grips on leads.
- 24" leads with flexible, double-thickness rubber insulation vulcanized to wire to prevent slipping.

You'll get years of real service out of this tester — it's built to stand the gaff. Write for factual folder. Address Square D Company, 6060 Rivard St., Detroit 11, Michigan



SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A3477 — see handy form pages 2-3

CHEMICAL PREVIEW

H-B MIDGETS *give all 3*



- 1 LIGHT WEIGHT
- 2 LABORATORY ACCURACY
- 3 ARMORED RUGGEDNESS

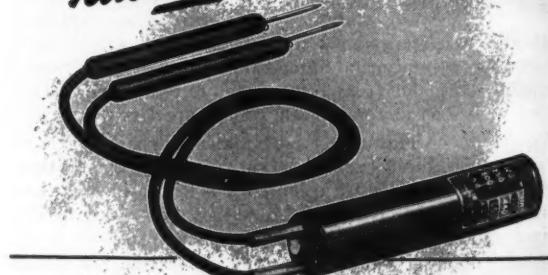
For the past 10 years H-B Midget Thermometers have been installed by the thousands. Easy to read because of lens-front yellow back tube and scale engraved on glass. Any range from minus 30 to plus 700°F. Made in both straight and angle types, weighing but 5 and 7 ozs. respectively. Straight type, 9 in. overall. For details, write for folder. H-B Instrument Company, 2510 No. Broad Street, Philadelphia 32, Pa.

THERMOMETERS • THERMOSTATS • RELAYS
 THERMO-REGULATORS • HYDROMETERS



When inquiring specify CP A3476 — see handy form pages 2-3

*No Other Voltage Tester
 has All these Features*



- Tests without lamps. Positive voltage identification — 110, 220, 440, 550 A.C. 125-250-600 D.C.
- Each voltage shown by different colored band for easy reading.
- Compact — can be carried in pocket.
- 4" insulating grips on leads.
- 24" leads with flexible, double-thickness rubber insulation vulcanized to wire to prevent slipping.

You'll get years of real service out of this tester — it's built to stand the gaff. Write for factual folder. Address Square D Company, 6060 Rivard St., Detroit 11, Michigan



SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A3477 — see handy form pages 2-3

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INSTRUMENTS

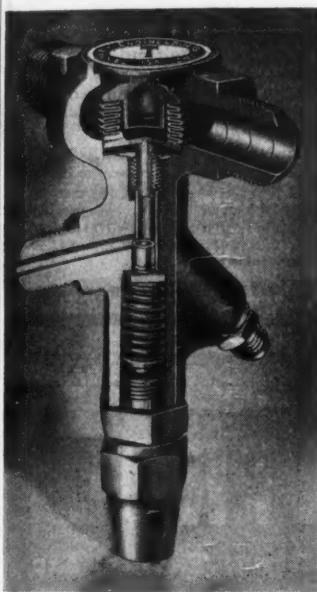
time, and then shut off the heat supply, and signal the operator that the cycle has been completed. By reference to the instrument and its notations, any cycle can be exactly duplicated as desired, in any similar plant regardless of season.

THE FOXBORO CO., Dept. CP, Foxboro, Mass.

When inquiring specify CP A3478 — see handy form pages 2-3

Thermostatic Expansion Valve for Refrigerant Flow into Evaporator

Feeler bulb eliminated; adapted to modern evaporators with forced air, small tubes, short passes, etc.



Valve has novel needle and seat design sometimes be encountered between suction line, bulb, control fluid, and valve diaphragm or bellows. Extremely close super-heat control (such as 5° F. super heat with plus or minus 1/2° F.) for control can be maintained. It is particularly adapted to modern evaporators with forced air, small tubes, short passes, and distributor header combinations. It is also suitable for small evaporators or modern close coupled coil and machine combinations. It will close completely above a definite evaporative pressure. Another feature is elimination of need of special charging and complicated cross charging to assure operation in a specific temperature range, normally included in "liquid charged" valves. No special installation is required to prevent loss of control caused by condensing of bulb control fluid in the valve body. The use of an external equalizer is not necessary, as compensation for pressure drop in evaporator or distributor has been designed right into the valve itself. No stem packing is required; novel needle and seat design assure positive closure. (Other models for air conditioning and low temperature use)

TENNEY ENGINEERING, INC., Dept. CP, 26 Avenue B, Newark 5, N. J.

When inquiring specify CP A3479 — see handy form pages 2-3



This New Data Book No. 1000

Contains Complete Information On

Republic Pneumatic Transmitters

OPERATING ON THE FORCE-BALANCE PRINCIPLE

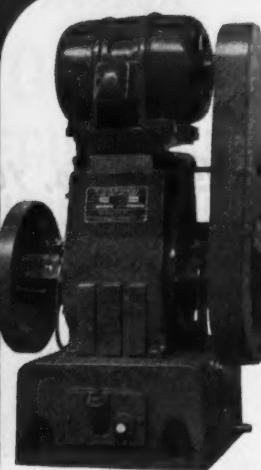
for the measurement
and control of
FLOW
PRESSURE
LIQUID LEVEL
LIQUID DENSITY
DIFFERENTIAL VAPOR PRESSURE

A Copy of This
28 Page Data Book
Will Be Mailed
On Request

REPUBLIC FLOW METERS CORPORATION
2240 DIVERSEY PARKWAY • CHICAGO 47, ILLINOIS

When inquiring specify CP A3480 . . . see information request blank, pgs. 2-3

Stokes MICROVAC Pumps HEART OF HIGH VACUUM SYSTEMS



- Higher Vacuum (in the low micron range)
- High volumetric efficiency
- Low power requirement
- Complete discharge of air—no re-expansion
- Continuous dehydration of oil—no moisture to re-evaporate
- Discharges sudden slugs of liquid without injury
- Easily accessible, non-corrosive discharge valve
- Rugged, compact, simple construction
- Long life . . . negligible maintenance
- Five sizes—from 10 to 235 cu. ft. per min.

Stokes VACUUM GAUGES (Patented McLeod Type)

Are Always Accurate



- Require no calibration
- Rapid readings
- Simple to operate—just tip and read
- Two models—(AA)—0 to 5000 microns
- (BB)—0 to 700 microns, with readings to 1/10 micron.

F. J. STOKES MACHINE CO.
5974 Tabor Road, Philadelphia 20, Pa.

Stokes High Vacuum PUMPS • GAUGES • EQUIPMENT

When inquiring specify CP A3481—see handy form pages 2-3

INSTRUMENTS

Control Devices Feature Unique Snap Action Arrangement

For accurate control of pressure, temperature, humidity and mechanical displacement



Uses — This complete line of control devices embodying a unique snap-action arrangement lends itself to unusually accurate control of temperature, pressure, humidity and mechanical displacement. **Description** — Illustrated is Model C thermostat weighing less than one ounce and rated at 10 amps, 115-V AC or 28 V DC. Other models can be supplied for various thermal control requirements. The controls are fully adjustable over a wide range and are furnished with operating differentials running down to as low as 1° F. Features include double break contacts; applicable range from -100° F. to 600° F.; enclosed contacts; adjustable to any mounting means. Additional information on "Cam-stat" devices on request.

PAUL HENRY CO., (Thermal Div.), Dept. CP, 2037 S. La Cienga Blvd., Los Angeles, Cal.

When inquiring specify CP A3482—see handy form pages 2-3

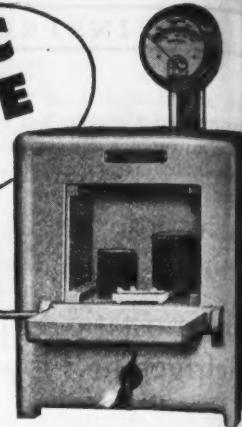
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New Book on Fundamentals of Automatic Industrial Control

The development and emergence of automatic control in its present status as an exact science is explained simply and instructively in a new book, "The Principles of Industrial Process Control." Written by Donald P. Eckman, engineer of Brown Instrument Company, industrial division of Minneapolis-Honeywell Regulator Company, the book is the first of its kind to be published concerning the overall basic fundamentals of the science of automatic industrial control. For the first time it puts between two covers all the technical and practical information about the new science which grew so rapidly during the war and which will play an even more important role in the years ahead, when efficient and economical production techniques will be of paramount importance. Principles of Industrial Process Control, published by John Wiley & Sons, Inc., New York, explains automatic control, measurement and process in a language that is understandable to the student and worker and valuable as a guide and reference for the processor and his technicians. Subjects covered include: Measuring means of industrial controllers, characteristics of measuring means, modes of automatic control, final control elements, process characteristics theory of automatic control, quality of automatic control, application of control engineering, automatic control systems, maintenance of exact control. The volume ends with a glossary of 126 terms and definitions. It also provides 119 references. Under related headings the author has considered the various elements of error and lag, methods of regulation, cycling, pressures, humidity and air conditioning, maintenance and upwards of 150 other sub-basic principles. Primarily, the volume is intended for the student in chemical, metallurgical, mechanical or elec-

TEMCO ELECTRIC FURNACE

MODEL GRP



FOR HEAT TREATING
SMALL TOOLS AND
PARTS, TESTING AND
LABORATORY WORK.

FAST HEATING—1500°

F. in 30 min. Temperature controlled by four point switch set for 500°, 1000°, 1500° and 1850° F. These settings easily changed by adjusting bands on rheostat coils. Dependable indicating pyrometer is calibrated in both Fahrenheit and Centigrade scales.

UNIFORM TEMPERATURE—Heating element of highest quality nickel-chromium alloy forms a continuous coil and is embedded in sides, top and bottom of muffle chamber. This construction assures uniform temperature and protects element from damage and oxidation. Complete muffle unit is replaceable.

PORTABLE—Body is aluminum. Total weight, 17 lbs. Muffle chamber, 4" x 3 3/4" x 3 3/4"; furnace overall, 9 1/4" x 13 1/2" x 10 1/2". Supplied with attachment cord. Operates on A.C. and D.C., 115 or 230 V. (be sure to specify voltage). Max. power consumption 1200 watts. Model GRP complete, 115 V.....\$42.50; 230 V.....\$47.50

See your supply house or write

THERMO ELECTRIC MFG. CO., 476 W. Locust St., Dubuque, Ia.

When inquiring specify CP A3483—see handy form pages 2-3

CONTROL

Filling of Bins, Tanks, Etc.

with S-A TELLEVEL Automatic Level Regulator

Avoid overflows or empties. Maintain the right level of bulk materials or liquids in bins, hoppers or storage tanks—all the time. TELLEVEL'S automatic flow control halts the waste of space and materials.

TELLEVEL actuates conveyors, valves, feeders, etc., when rising or falling material level tilts the swinging float ball. Save space and attention with TELLEVEL "Stop-Go" material handling control.



Write today for descriptive bulletin No. 440

STEPHENS-ADAMSON MFG. CO.

Tellevel—Bin Level Controls Car Loaders Sack Speed Reducers SealMaster Ball Bearings Car Pulleys Winches
11 RIDGEWAY AVE., AURORA, ILL.

When inquiring specify CP A3484—see handy form pages 2-3

Get the Extra Service KemROCK Gives!

— a Valuable Feature of KEWAUNEE LABORATORY FURNITURE

The KemROCK working surfaces of Kewaunee Furniture successfully resist acids, alkalis and solvents. Being "rock-hard" they also resist abrasion, and both physical and thermal shocks. KemROCK gives you a big plus value. Add this to Kewaunee's streamlined beauty, working conveniences and fine workmanship and you will understand why America's Finest Laboratories are Kewaunee Equipped.

Address Inquiries to—
INDUSTRIAL DIVISION



When inquiring specify CP A3485 — see handy form pages 2-3



When inquiring specify CP A3486 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

INSTRUMENTS

trical engineering. The growing importance of this subject to modern industrial processing has been acknowledged by the addition of courses in instrumentation and automatic control to the curricula of engineering colleges and technical schools. The book is available from John Wiley & Sons, Inc., 440-4th Ave. — the publishers and is priced at \$3.50. DO NOT SEND ANY REMITTANCES TO US but to publisher at address below.

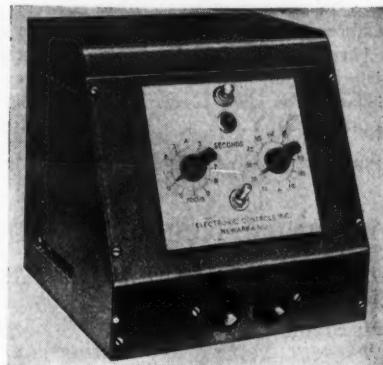
JOHN WILEY & SONS, Inc., 440-4th Ave., New York 16, N. Y.

When inquiring specify CP A3487 — see handy form pages 2-3

*

Electronic Interval Timer; Two Receptacles; Range 1-120 Seconds

Snap-positioning step-switches assure precision control; slope front cabinet



Timer cabinet—on & off push switches, pilot light.

Uses — This instrument is suitable for highly accurate circuit timing in photography, lithography, blueprinting, photostating, process control, drying ovens, heating treating, plating, induction furnaces, industrial ovens, laboratories, machine tools, mixers, plastic molding, production control, tumbling barrels, x-ray exposures.

Features — Accuracy better than 5%. Unit is housed in an attractive slope front steel cabinet with handsome crackle finish. Two dials are provided for time selection. One dial is calibrated in single seconds; the other in 10 second steps. Dials control tap switches. Unlike potentiometer control, the snap-positioning step-switches assure precision control, with exact values of resistance inserted in the circuit at each position. A pilot light, toggle on-off switch and a push-switch are included.

Description — Time range is from 1 to 120 seconds in increments of one second.

A double receptacle permits timing two circuits simultaneously. Contacts are normally wired SPDT with double break and are rated at 25 amps 32 VDC, 25 amps 125 VAC and 10 amps 230 VAC. Contacts can be wired DPDT at correspondingly lower rating.

Cabinet size is 8x8x8 inches. Tube used is a 2050 thyratron. High accuracy resistors assure precise timing and timing is independent of the length of time the tripping push button is depressed. Dial switch is provided with a position for continuous circuit closure. The unit is compact, easy to operate and is supplied for 115 VAC operation.

ELECTRONIC CONTROLS, INC., Dept. CP, 44 Summer Ave., Newark, N. J.

When inquiring specify CP A3488 — see handy form pages 2-3

INDOORS
OUTDOORS

The Gage with

**MAXIMUM
VISIBILITY**

*is the Best
for
Warning*



The purpose of a liquid level gage is to reassure . . . or to warn, to warn through the eye. That's why it's vitally important that the gage give maximum visibility.

Without question, the JERGUSON Reflex Gage provides such visibility. The liquid in the column — any liquid — shows a dead black; the space above shows contrasting white. No better visibility can be obtained. If, however, the condition or color of liquid must be noted, we recommend our Transparent Gage, which is fitted with "see-through" glass.

Both gages are constructed of durable steel and alloy steel parts. The glass, carefully tempered, is resistant to high temperatures. And in both, the glass is installed in separate, strong strips rather than in tubular form.

JERGUSON GAGE & VALVE CO.

90 Fellsway

CHARLOTTE, NORTH CAROLINA

M. & S. Company

CHESTER 1, PENNSYLVANIA

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Tecnica y Equipos, S. A.

1-JV-6

When inquiring specify CP A3489 — see handy form pages 2-3

Page 29



AN INSTRUMENT MAN'S GAUGE



This man is verifying a master test gauge by means of a dead-weight test. The test gauge will be used in turn to check the accuracy of gauges used in plant processes. You will find many such men performing a skillful and vital function throughout the process industries where special emphasis must be placed on gauge accuracy.

These men know gauges forward and backward—and therefore we have drawn freely on their practical fund of knowledge in designing Marsh Gauges. That is why Marsh Gauges—particularly as exemplified in the Master-gauge—can truthfully be called an instrument man's gauge.

It may not be necessary to go beyond your own organization to confirm this. But if it is you will find eloquent proof that Marsh gets the vote of those who know gauges best in its widespread standardization as original equipment on products developed by the most discriminating manufacturers and foremost designing engineers.

JAS. P. MARSH CORPORATION
2095 Southport Avenue, Chicago 14, Illinois
Export Department: 155 East 44th Street, New York 17, N. Y.

MARSH GAUGES
"THE STANDARD OF ACCURACY"
DIAL THERMOMETERS HEATING SPECIALTIES

When inquiring specify CP A3490—see handy form pages 2-3

Page 30

INSTRUMENTS

Selenium Rectifiers in Wide Range of Units from 25 Mils. Up

Utilize in the main aluminum in place of cast iron or similar metals

Uses — Among numerous applications selenium rectifiers are used for battery charging, relay circuits, welding, electroplating, magnetic devices and telephony.

Features — High stability, long life, compactness. Utilize, in the main, aluminum in place of iron or similar metals. Method of sealing in the unit hermetically assures maximum performance under all climatic conditions. Use of aluminum reduces weight by two-thirds and enables more efficient heat dissipation and provides for an increased margin of protection beyond normal plate rating.

Description — This recently introduced new line embraces a wide range of units from 25 mils up to hundreds of amperes. Selenium rectifiers enable efficient operation at higher ambient temperatures and serve for extremely prolonged periods, at least fully as long as other circuit components. Detailed information on request.

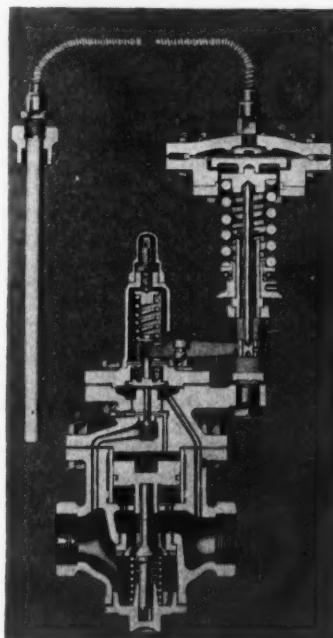
RADIO RECEPTOR CO., INC., Dept. CP, 251 W. 19th St., New York 11, N. Y.

When inquiring specify CP A3491—see handy form pages 2-3

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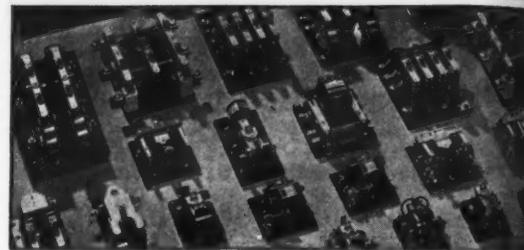
Steam Service Regulator Governs Both Temperature and Pressure

Single unit obtains both simultaneously; has metal diaphragm; no bellows; packing glands



Detail of Regulator

Leaks are eliminated and minimum attention is required. All wearing parts are renewable. 100 percent interchangeability allows complete overhaul without removal from the pipe line. Corrosion and wear resistance is obtained with



BULLETINS TELL THE WHOLE RELAY STORY

Bulletin 105—"Little Giant Relay" single pole, single and double throw. Controls 34 HP on 115-230V.

Bulletin 106—Midget Relays for light duty available in single and double pole, single and double throw.

Bulletin 81—Intermediate Duty Relays in single and multipole arrangements, single and double throw.

Bulletin 362—Motor Driven Time Delay Relays for operation on alternating current.

Bulletin 104—Midget Relay for light

places—Vibration resistant—Double Pole Double Throw—Available for 6 to 115 volts A.C. or D.C.

Bulletin 131 and 132—Heavy Duty Relays single and multipole, single and double contacts rated up to 25 amp.

Bulletin 251—Sensitive Type Relays for direct and alternating current operating on .014 amp.

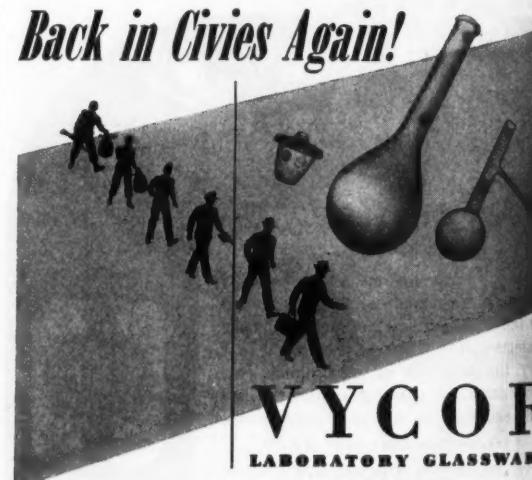
Bulletin 351—Thermal Time Delay Relays with thermostat built into relay assembly.

Bulletin 103—Aircraft Power Relay. Single Pole, Single Throw for 24 volt at 25 amps. D.C. Withstands high values of acceleration of gravity, shock, and vibration.

WARD LEONARD
Electric control devices since 1892
Offices in all principal cities

WARD LEONARD ELECTRIC COMPANY
92 SOUTH ST., MOUNT VERNON, N. Y.

When inquiring specify CP A3492—see handy form pages 2-3



VYCOR
LABORATORY GLASSWARE



Introduced in 1939, distribution of Vycor brand Laboratory Glassware had barely started when World War II began and most of the ware was drafted.

Now, however, "Vycor" is back in civics again and is being stocked by your laboratory supply dealer. It is fabricated from Vycor brand 96% silica glass by a unique patented method whereby most of the constituents other than silica are leached out.

A sufficient variety of shapes—beakers, crucibles, evaporating dishes, tubes, etc.—is now available to provide fairly complete coverage of most upper temperature requirements. Consult your laboratory supply dealer.

Vycor is a registered trade-mark and indicates manufacture by CORNING GLASS WORKS, CORNING, NEW YORK

VYCOR FABRICATED FROM VYCOR 96% SILICA GLASS.
LABORATORY GLASSWARE

When inquiring specify CP A3493—see handy form pages 2-3

CHEMICAL PREVIEW

A MOISTURE TESTER *for Every Need*

STEINLITE ONE MINUTE TESTER

An experienced operator can make a moisture test with the Steinlite in one minute; almost any operator in two or three minutes. Calibrated against official oven methods. Operator requires no technical training. Tests wide variety of products—dehydrated foods...dried eggs, nuts, coca, etc. Sold on 10-day free trial basis. No money down. Price \$325.00.



OTHER TESTERS

Brown-Duvel especially suited where the volume of samples is small. Carter-Simon for laboratory tests on all materials. Brabender semi-automatic, the modern drying oven. Tag-Heppenstall for whole grain only.

667 Brooks Building

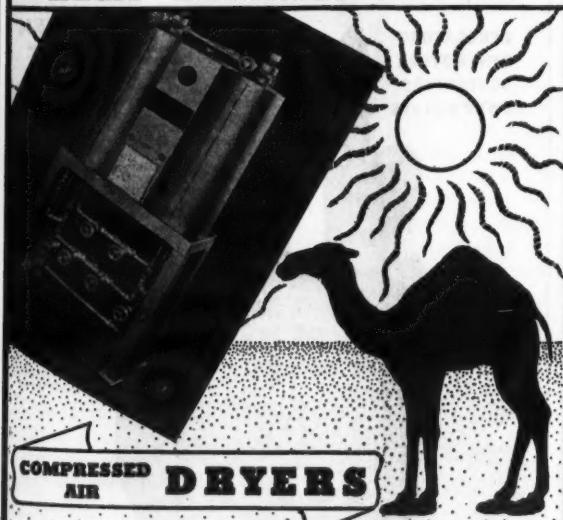
Chicago 6, Illinois

SEED BURO
EQUIPMENT COMPANY



When inquiring specify CP A3494—see handy form pages 2-3

KEMP DYNAMIC DRYERS



COMPRESSED AIR DRYERS

For Sub-zero dew points under varied conditions

- For instrument lines
- For process work
- For inspection and assembly departments

FOR COMPLETE INFORMATION WRITE FOR BULLETIN 25-D.

The C. M. KEMP MANUFACTURING CO.
605 E. OLIVER ST. BALTIMORE 2, MD.

When inquiring specify CP A3495—see handy form pages 2-3

JANUARY - FEBRUARY, 1946

INSTRUMENTS

the use of stainless steel hardened wearing parts. Vital parts are hardened to at least 500 Brinell. A vapor filled thermostatic element acting through the upper diaphragm and lever oppose pressure limit spring and determines the steam pressure delivered by regulator to heat exchanger. Manual compression of the limit spring determines maximum outlet pressure and opens controlling valve admitting high pressure steam from inlet body port to top of piston which opens main valve. The outlet steam pressure acting under steam diaphragm balances compression of limit spring, throttling controlling valve and limiting the maximum outlet pressure. The temperature at which the vapor pressure starts to oppose the limit spring and decrease the outlet steam pressure is set on the adjusting spring. This spring opposes the vapor pressure through the large upper diaphragm and by means of this spring the temperature at which all steam to the heater will be shut off can be securely set. A temperature drop of 1 per cent at bulb reduces vapor pressure, allowing limit spring to open controlling valve and deliver an increased steam pressure to heat exchanger. Therefore outlet steam pressure is always directly proportional to the change in temperature at bulb and this pressure is automatically maintained regardless of the volume of steam used by heater or variations in supply pressure.

LESLIE CO., Dept. CP, 90 Delafield Ave., Lyndhurst, N. J.

When inquiring specify CP A3496—see handy form pages 2-3

*

Laboratory Catalog Supplement Offers New Materials, Equipment; Pipette Suction Units

A recently issued catalog supplement—36 pages—offers a wide variety of standard apparatus and many new and improved items. The selection includes laboratory ovens, purity meters, fire extinguishers, colloid mills, mixers, box type furnaces, tube type furnaces, hot plates, "wrist-action" shakers, flask heaters, colorimeters and timers. In addition to the more familiar reagents both organic and inorganic, many of the newer materials are also available. Among the very serviceable accessories illustrated and described is the "Caulfield" Pipettor for pipetting volatile, corrosive poisonous liquids. It consists of a rubber bulb mounted in a three sided, polished hard rubber frame over a cleverly devised valve, with an extremely sensitive valve control at the top. At the lower end is a soft bushing permitting easy insertion of any size pipette. It will draw up any desired quantity and discharge it accurately. The pipettor is light and operated with one hand. It provides hairline accuracy in measuring off and clear visibility of the entire pipette while the fluid is being drawn up. Depending upon the pipette employed it will draw up and accurately discharge to less than 1/100ths cc. Another suction device is a nickel-plated metal barrel, 2 inches long and 1/2 inch in diameter that has numerous applications. It has been used to advantage in delivering fractional drops of liquid from micro pipettes. The barrel is equipped with a close fitting screw with knurled head. To the barrel is attached a 1 1/4 inch length of soft rubber which fits over the suction head of the pipette. The apparatus is operated by inserting it over the mouthpiece of the pipette, holding it dagger-wise and turning the thumb screw until liquid has been drawn to the point desired in the pipette. Catalog Supplement Number Four on request.

*WILL CORPORATION, Dept. CP, Rochester, N. Y.

When inquiring specify CP A3497—see handy form pages 2-3

CLEAN without soap



You may like soapy cleansers—and think they're good—until you try the new wetting agent, Alconox.

This amazing new cleanser Lifts off hard-to-clean dirt...Fast

No matter what you want to clean, or how dirty it may be. Alconox will make it sparkle. Yet it is gentle on the hands. Soapless but suds freely

ALCONOX™ cleans almost everything

So you needn't stock different cleansers for different jobs. Just Wash and Rinse

It's Sparkling Clean

Wiping practically unnecessary. Leading hospitals, laboratories, food and industrial plants use it—like it. So will you. Try it on your toughest job. 3-lb. box \$1.25; 12 boxes \$12.50; 50-lb. bag, 32c lb. i.o.b. New York. Prices for larger bulk on request. Order today. Or write for Free Sample

STANDARD SCIENTIFIC SUPPLY CORP.
34 West 4th St.
New York 12, N. Y.

ALCONOX

cleans better
cleans quicker

When inquiring specify CP A3498—see handy form pages 2-3

RIGID PALMER TESTS



Assure Permanent Accuracy

ONLY PALMER GIVES ALL THREE

- Easy "Red-Reading" Mercury Column
- Extreme accuracy assured by modern testing
- Long life due to quality workmanship and materials

Many safeguards assure accuracy and dependability in Palmer Thermometers. One is illustrated above. The operator is checking size of bore and diameter of tube with a special microscope. Tests like these insure every industry that Palmer Industrial Laboratory, Dial and Recording Thermometers serve faithfully and well.

The PALMER Co.

MERS INDUSTRIAL, LABORATORY, RECORDING & DIAL THERMOMETERS
2519 NORWOOD AVE., CINCINNATI 12, O.
CANADIAN PLANT: KING & GORGAN, LTD., TORONTO, 2



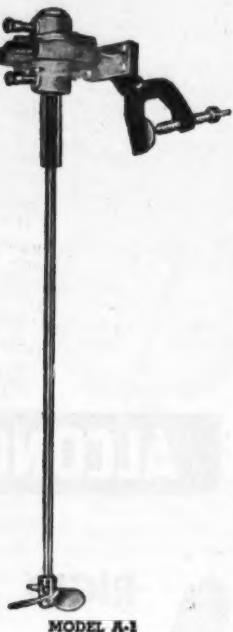
When inquiring specify CP A3499—see handy form pages 2-3

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EASTERN MIXERS

PORtABLE
SIDE-ENTERING

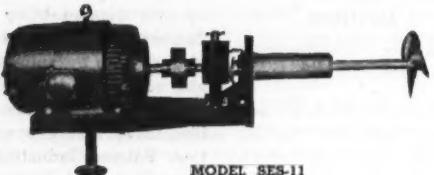
VERTICAL
AIR-POWERED



MODEL VG-SD

If you have a mixing or blending application ranging from a one pint laboratory stirrer to 100,000 barrel blending tank, there is an Eastern Mixer that is right for the job. Let our engineers help you.

Eastern has developed a mechanical rotary seal to replace the conventional stuffing box in side-entering mixers. It is applicable for non-corrosive liquids, including hydrocarbons, aqueous solutions, etc. It is particularly desirable for use with oil-sensitive substances. Maintenance trouble will be a thing of the past. No re-packing with a tank empty or full will be required.



MODEL SES-11

EASTERN ENGINEERING COMPANY

49 FOX STREET NEW HAVEN 6, CONN.

When inquiring specify CP A3500 — see handy form pages 2-3

Page 32

INSTRUMENTS

Processing Time Controllers

This advanced batch Process Timing Mechanism is a device built into the 94R Type Fulscope Temperature or Pressure Recording Controller for the purpose of timing batch processes such as hosiery dye machines, canners' retorts, rubber vulcanizers, etc. The process is started by manually adjusting the instrument for the desired time period. Timing commences, not immediately, but when the apparatus reaches the set point of the controller, regardless of how long the "coming up" time may be. At the end of the time period, the Process Timing Mechanism automatically terminates the process. The mechanism and how it can be applied to the various process requirements is clearly shown by illustrations and piping diagrams in Bulletin 98152.

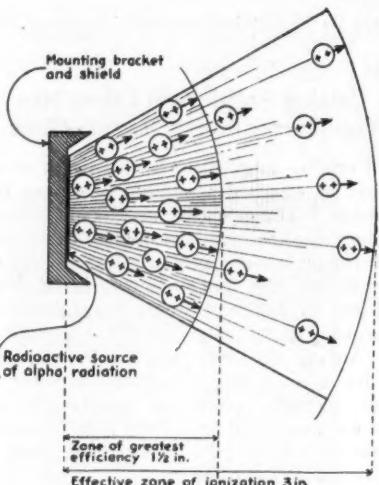
TAYLOR INSTRUMENT COMPANIES, Dept. CP, Rochester 1, N. Y.

When inquiring specify CP A3501 — see handy form pages 2-3

*

Radioactive Device Offers Answer To Problem of Static Electricity

Used successfully in connection with machinery and such materials as textiles, plastic sheet



"Ionotron" Static Eliminator

radiation from a radioactive surface, in the form of a long, narrow strip, ionizes the surrounding air up to a distance of three inches from the surface. Effectual removal of static electricity within this zone is permanently assured in all applications, because the radioactive strength of the active element decreases only 50 per cent in some 1600 years. Research and special wartime applications indicate its widespread adoption by industry for eliminating production problems due to static and for safeguarding hazardous processes where static is a possible cause of ignition of flammable solids, liquids, or gases. The static-neutralizing element consists of extremely thin metallic foil, incorporating a radioactive substance and welded to a nonradioactive, metallic backing. The foil serves as a mechanical bonding medium for the radioactive material and acts as a seal to prevent escape of radon gas. The construction is such that alpha radiation is emitted directionally, creating an ionized zone in the region of the electrostatic charge. The assembly is mounted in a housing

Uses — Economical elimination of static electricity from machinery and from moving paper, plastic sheeting, textiles and other materials.

Description — This problem is being met very satisfactorily by a new device known as the "Ionotron" static eliminator. The device has no moving parts and requires no electrical connections.

A continuous

source of alpha

these ELECTRONIC stainless steel FINGERS

Step Up Production
Reduce Waste and Loss

By Preventing

Overflow of tanks
Draining of boilers
Air binding of pumps
Burning out Boiler tubes
Burning processing pots
Water contamination

Faratron Liquid Level Controls

Just two polished stainless steel rods — that's all — in the vat, tank, boiler, processing kettle, freezer, pasteurizer etc., to control signals or operate pump or valves; they are constantly on duty — need no servicing — and are easy to install.

If you have any liquids — hot or cold — in any type of container — to control, you should have our Bulletin 458. Write for it today.

Lumenite Electronic Company
GENERAL MANUFACTURERS
407 S. Dearborn Street Chicago 5, Ill.

When inquiring specify CP A3502 — see handy form pages 2-3

For Checking Machine Speeds

AND MOTOR-DRIVEN ELEC. EQUIPMENT

GENERATORS
DYNAMOTORS
CONVERTORS
POWER PLANTS

Jones Tachometers give an instant and accurate check on RPM. For checking and testing motor speeds; for checking shafts and rotating parts on equipment, both for RPM, feet per minute and other special conversions. Continuous indicating, guaranteed calibration. Jones multi-range portable hand tachometer shown is light-weight and heavy-duty . . . 300 to 12000 RPM. Complete with 4" extension rod, convex and concave rubber tips and steel tip, 12" peripheral disc, and carrying case . . . \$60 FOB Stamford, Conn.

A wide variety of fixed and portable tachometers with many different ranges available. Write for complete specifications.



JONES
TACHOMETERS
JONES MULTRA CORP.
422 Fairfield Ave.
Stamford, Conn.

When inquiring specify CP A3503 — see handy form pages 2-3

CHEMICAL PREVIEW

INSTRUMENTS

designed to provide adequate shielding and can be supplied, within limits, in forms or shapes to meet special requirements.

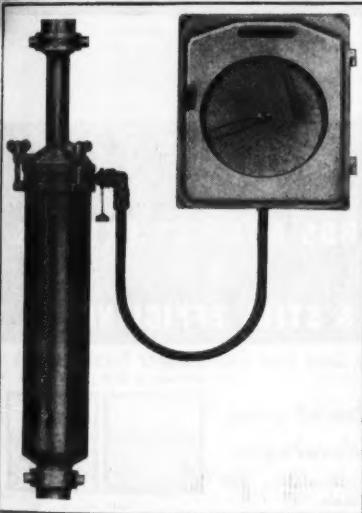
The installed cost of the static-eliminating unit is low, considering its long service life, high efficiency, and lack of maintenance requirements. Its installation requires no redesign of existing equipment but involves engineering problems — such as determination of alpha-radiation strength required and proper positioning in relation to stock and machine parts — which are best worked out in consultation with alpha-radiation specialists. The thickness of the active layer of an Ionotron unit is 2.5 microns or less. Units are available with concentrations up to 1500 micrograms per sq. in. radium equivalent. The alpha radiation is 60 to 75% of theoretical. Total saturation ionization current produced is approximately 1.4 microamperes per milligram of radium. Emanation release is low. Information regarding other characteristics of the Ionotron static eliminator is available on request.

UNITED STATES RADIUM CORP., Dept. CP, 535 Pearl St., New York 25, N. Y.

When inquiring specify CP A3504 — see handy form pages 2-3

Rotameter for Sanitary Fluids

Unit with electric transmission for recording and/or totalizing; made of stainless steel!



Flow in sanitary rotameter is straight through the meter from bottom to top

are no glass parts in the meter. It is made entirely of stainless steel and the flow is straight through the meter from bottom to top. There are no pockets for dirt or germs to collect.

Description — Supplied with standard sanitary connections and built in several sizes capable of handling ranges starting at 1000 pounds per hour of milk and continuing up to as high as 150,000 pounds per hour. By loosening three wing nuts at the center of the meter, it comes apart in four pieces that may readily and safely be washed with hot water. Bulletin 5-B on request.

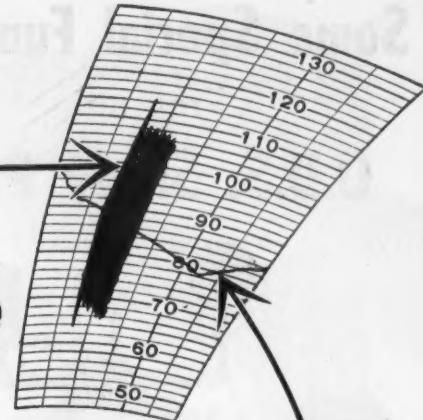
FISCHER & PORTER CO., Dept. CP, 944 R County Line Rd., Hatboro, Pa.

When inquiring specify CP A3505 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

If your pressure charts look like this

...install this Taylor Pressure Pulsation Damping Unit



...and make them look like this!



HOW long since you've looked at the chart records on your pressure or flow controllers? If they're on lines where pressures pulsate or sudden changes occur, you may find them mighty hard to interpret. Pulsations show up on the chart as a confusing mass of ink. To overcome this difficulty we designed the Taylor Pressure Pulsation Damping Unit. This simple new device damps pulsating pressure waves and gives you a true instantaneous AVERAGE of pressure.

Install it in the line just ahead of the instrument on gas or liquid service. Permits the measuring instrument to make a clean-cut, easy to interpret pressure record. In fact, enables you to apply instruments where it would otherwise be impractical. It's another example of the ingenuity of our engineers in helping you solve difficult processing problems.

Send for descriptive literature or enter your order right now. Ask for—
No. 585104 Taylor Pressure Pulsation Damping Unit, net price \$7.50.
Dimensions 7-9/16" x 1-17/64"; 1/4" NPT connection.

Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

Taylor Instruments
MEAN
ACCURACY FIRST

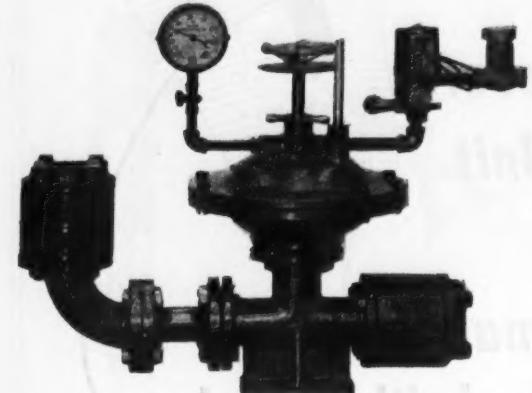
IN HOME AND INDUSTRY



When inquiring specify CP A3506 . . . see information request blank, pgs. 2-3

Page 33

Some Special Functions FOR THE O.D.S. Slurry Pump



- Proportion Different Slurries
- Meter Individual Flows
- Feed Pressure Filters

The O.D.S. Slurry Pump (described in Bulletin 309) can do the "run of mill" pumping jobs, handling a great variety of slurries and corrosive solutions. But it can also be used effectively for special purposes as noted above.

By varying the volume handled in each pump of a battery, different slurries can be mixed with quite accurate proportions.

If the flow needs to be metered, a special "control" can be used so that the pump delivers the same volume each pulsation.

As for handling feeds to plate and frame and other pressure filters of all types, bear in mind that the O.D.S. flow is straight line and has high flow pressures. There is no churning or whirling action to accelerate abrasion or to break up crystals or floc.

Yes, the O.D.S. is quite a pump! Try it on your slurries or sludges. Write us about your problem.

OLIVER
UNITED FILTERS
INC.

New York 18, N. Y.
33 West 42nd Street



Chicago 1, Ill.
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2900 Glascott Street

1-OUF-2

Canada: Sales & Manufacturing Representative — E. Long Limited, Orillia, Canada
Factories: Oakland, Calif.—Hazleton, Pa.—Orillia, Canada—Melbourne, Australia

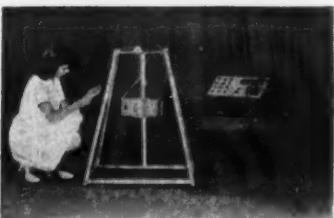
When inquiring specify CP A3507 — see handy form pages 2-3

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INSTRUMENTS

Cushioning Meter Measures Packing Efficiency

Measures shock experienced by packed objects



Mock-up with detector head attached — meter at right

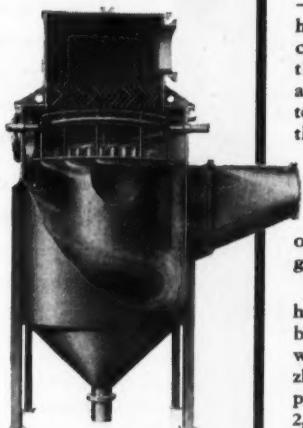
applies scientific test methods to the evaluation of packing systems, and measures, in standard terms, the shock experienced by the object packed, thus checking the effectiveness of the packing system.

Description — The unit consists of a detector head and an indicator. The detector head contains an electric mechanism which responds in varying degrees to the shock it experiences. This response is transmitted through a flexible cable to the indicator, on which it is registered by the energizing of neon glow lamps marked to correspond to the peak shock expressed in G's. It registers shock in twelve steps covering a range of 10 to 100 G's. Indication is accurate to 1G on any step. The indicator circuits operate

Uses — A cushioning meter, offering a simple, rapid, and dependable means of determining the correct type, amount, and distribution of cushioning material to protect any article in shipment, has recently been announced.

This meter applies scientific test methods to the evaluation of packing systems, and measures, in standard terms, the shock experienced by the object packed, thus checking the effectiveness of the packing system.

SUPPRESS DUST WITH WATER



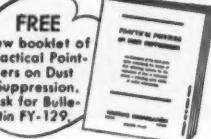
Cutaway view showing Hydro-Clone system of blading and baffling.

and reduce every particle to harmless sludge!

● Whiting Hydro-Clone — Type SH — precipitates heavy particles in the pre-cleaner . . . then removes the fine particles in the axial tube and disintegrator section directly above this tube. The resulting sludge drains to a dewatering tank, and water is recirculated. The water also removes obnoxious gases and dangerous fumes.

Hydro-Clone Equipment has no cloth screens or bags to clean, burn, or wear out . . . no spray nozzles to clog . . . no moving parts. Capacities from 2,000 to 30,000 cfm. Write for Bulletins FY-126 and FY-131 (low headroom type).

WHITING
CORPORATION
15667 Lathrop Ave.
Harvey, Illinois



When inquiring specify CP A3508 — see handy form pages 2-3

MOTORIZED VALVES

for...

AIR

GAS

OIL

STEAM

WATER

CHEMICALS



The most complete line of motorized valves . . . operate from push buttons or rheostats for remote positioning . . . or automatically from thermostats and other measuring instruments. Standard types for On-Off, Throttling or Proportioning control. Splash-proof, weather-proof, dust-tight, explosion-proof designs available. Write for free Catalog A2 today.



AUTOMATIC TEMPERATURE CONTROL CO., Inc.
Logan St. & Germantown Ave. • Philadelphia 44, Pa.

When inquiring specify CP A3509 — see handy form pages 2-3



GUARDS AGAINST ENEMIES

BOILER & STILL EFFICIENCY
KAT and KAT Alone Does Your Entire Water Treatment Job

WITHOUT K. A. T. WITH K. A. T.

No other material gives all these Advantages

- 1 Prevents scale accumulation and removes existing scale.
- 2 Inhibits corrosion.
- 3 Permits almost continuous operation. Minimizes outages.
- 4 Slashes fuel, labor, maintenance costs.
- 5 Guards against contamination.
- 6 No chemical reaction. Works with any water regardless of composition.

Low cost KAT is always ready-to-use.
Literature on Request



Recommended by leading still manufacturers



WATER TREATMENT

AMERICAN K.A.T. CORP. • 331 MADISON AVE. • NEW YORK 17

When inquiring specify CP A3510 — see handy form pages 2-3

CHEMICAL PREVIEW

INSTRUMENTS

ate from the self-contained 110-volt, 50/60-cycle, a-c power supply. In operation the detector head is attached to a mock-up of the article to be packed, thereby eliminating the danger of damaging delicate or costly instruments or equipment in testing their packing. After being attached to the unit, the mock-up is dropped on a hard surface and the peak shock is read from the indicator. The lamps on the indicator circuit glow until a manual reset button is pressed, hence the operator need not watch an instrument pointer to catch a peak deflection. By providing standard measurements, this instrument supersedes such practices as rolling the package down a flight of stairs, tumbling it in a revolving drum, or shipping it over a test route. The indicator and power supply are housed in a carrying case with a hinged cover and a leather handle. The indicator case is 16½ by 11 by 9 inches and weighs 17 pounds, and the detector head, only 2 inches square by ¾ inch thick, weighs ½ pound.

GENERAL ELECTRIC CO., (Meter & Instrument Div.)
West Lynn, Mass.

When inquiring specify CP A3511 — see handy form pages 2-3

Direct Reading Line-Operated pH Meter

Easily operated; only one control in addition to electrode switch



Meter shows pH in .1 units

nicians. Experience necessary for obtaining pH readings is reduced to a minimum. Only one control in addition to the electrode switch is used.

Description — With this meter pH values are read directly on the scale in .1 units over the full range of 0-14 pH. Since no batteries whatever are used, the "Macbeth" line-operated pH meter can be left on continuously. A bulletin describing this instrument is available upon request.

MACBETH CORP., Dept. CP, 227 W. 17th St., New York 11, N. Y.

When inquiring specify CP A3512 — see handy form pages 2-3

Thermocouple Selection Data

Thirty-two page catalog gives information on selection of proper thermocouples and also presents installation aids. Detailed descriptions are given and recommendations are made on thermocouples, thermocouple wire, lead wire, heads, connectors, plug and socket assemblies, insulators and protector tubes.

WHEELCO INSTRUMENT COMPANY, Dept. CP, Chicago 7, Ill.

When inquiring specify CP A3513 — see handy form pages 2-3

New Electronik
+
CON-TAC-TOR

MERCURY SWITCH CONTROL

The Brown Electronik Potentiometer . . . unsurpassed for outstanding performance . . . has been made more versatile with Con-Tac-Tor Mercury Switches for the control of electric and fuel-fired furnaces.

Continuous Balance makes possible Continuous Correction — recording — signalling. Con-Tac-Tor (glass enclosed) mercury switches are worthwhile features that eliminate corrosion problems and the need for extra relays — and are available in fourteen different switching actions.

For applications where thermocouples or Radiometrics are used as the measuring elements. The scope of the Brown Electronik Potentiometer plus Con-Tac-Tor mercury switch control is unlimited.

Salient features of this new Electronik Controller are:

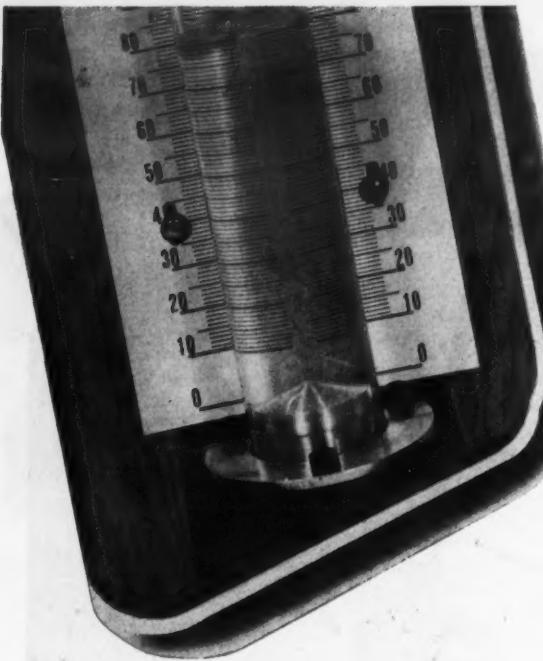
FRONT SET CONTROL INDEX: knob provides quick and easy setting of control point.
"CONTINUOUS BALANCE" PRINCIPLE OF MEASUREMENT AND CORRECTION: an electronic detector in place of conventional galvanometer. SUPER SENSITIVITY, ACCURACY, AND RUGGEDNESS.

AUXILIARY MERCURY SWITCHES are available on both circular chart and strip chart Electroniks for signalling alarms, safety devices, etc.

Write for catalog. THE BROWN INSTRUMENT COMPANY, a division of Minneapolis-Honeywell Regulator Company, 4421 Wayne Avenue, Philadelphia 44, Pa. Offices in all principal cities. Toronto, Canada; London, England; Stockholm, Sweden; Amsterdam, Holland.

BROWN **Electronik** POTENTIOMETERS

When inquiring specify CP A3514 . . . see information request blank, pgs. 2-3



DIALS • SCALES INDICATORS . NAME PLATES for Precision Measurements

With our unique Syl-O-Ette process we are making precision scales of various shapes and sizes — even up to 100" long.

These scales are outstanding in accuracy — both machine made and those individually calibrated. Scientific equipment and skilled personnel insure this quality. The easy-to-read feature characterizes all Maymer scales.

We make name plates of engraved lamacoid — distinctive in appearance and reasonable in cost.

Whatever your needs—dials, scales, indicators, name plates — we would welcome the opportunity of discussing them with you.

MAYMER CORPORATION

10896 BEECH ROAD CLEVELAND 2, OHIO

When inquiring specify CP A3515 — see handy form pages 2-3

Page 36

INSTRUMENTS

Thermo-Hydraulic Feed Water Regulators

An 8-page Bulletin, No. 83-C, entitled "Thermo-Hydraulic Feed Water Regulators" describes and illustrates improved designs of thermo-hydraulic generators and bellows operated feed water regulator valves, suitable for feed lines ranging in size from $\frac{3}{4}$ " to 6" inclusive.

A full page colored schematic illustration demonstrates the thermo-hydraulic principle which is entirely self-contained requiring no outside source of power. Copies sent on request.

BAILEY METER CO., Dept. CP, Cleveland 10, Ohio.

When inquiring specify CP A3516 — see handy form pages 2-3

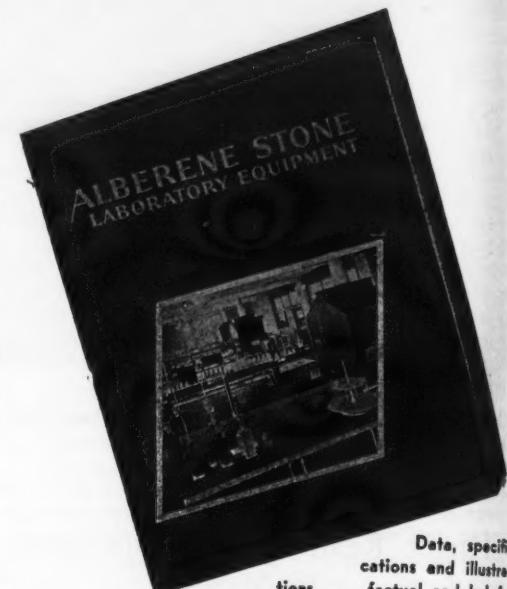
Amplifier for Complex Waves

Very compact unit weighing only 35 lbs.

Uses — This new "Video Amplifier" is designed primarily for use in amplifying complex waves to be viewed on an oscilloscope. The Amplifier is also extremely useful in laboratory work as an audio amplifier, for tracing and measuring small R. F. Voltages (as in the early stages of radio receivers), and many similar applications.

Description — The frequency response is flat within 1.5 DB of the 10 KC response from 15 cycles to 4 megacycles, and 3 DB from 10 cycles to 4.5 megacycles. The phase shift is reduced to a minimum to provide satisfactory reproduction of pulses on the order of one microsecond, and square waves at repetition rates as low as 100 a second. The gain is approximately 1000 when direct input is used. Input is normally through a probe, furnished with the equipment, having an attenuation of 10 times. The amplifier direct input (without probe) is approximately 2.2

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Data, specifications and illustrations . . . factual and helpful

. . . about Alberene Stone, the material

that outlasts the building.

ALBERENE STONE CORP. OF VIRGINIA
419 4th Ave., New York

When inquiring specify CP A3518 — see handy form pages 2-3

EDMONTS
STAND THE ACID TEST

Outside is acid and oil-resistant RUBBER. Inside is reinforced with STURDY FABRIC. If your job is handling dangerous acids, fluids or caustics, you'll like the extra safety of EDMONTS. Easy on and off—more comfort and protection for the hands.

Put EDMONTS to the acid test. You'll agree they're best for every use.

Edmont
TRADE MARK REG U.S. PAT OFF
501 ORANGE ST. . . . COSHOCTON OHIO

When inquiring specify CP A3517 — see handy form pages 2-3

2 P. M. PRODUCTION AT 8 A. M.



THE SCHAUB
DRAINTROL

guarantees quick morning heat-up and peak machine production all day long.

This inexpensive drainage device will give you such rapid warmup (without opening any by-passes) that your 8 A.M. temperature of the machine will equal your normal 2 P.M. temperature.

By constantly discharging AIR and CONDENSATE as soon as they form, the DRAINTROL speeds the circulation of steam, and assures a steady supply of heat at the machine. This means increased production without stoppage, as the machines get hot quickly in the morning, and hold a steady temperature all through the day!

Write today for full information.

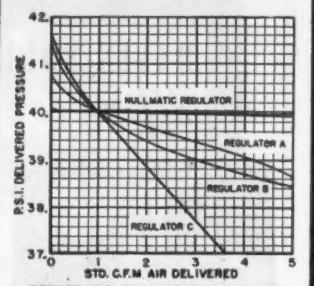
Fred H. Schaub Engineering Co., Inc.
329 W. Huron St., Chicago 10, Illinois

When inquiring specify CP A3519 — see handy form pages 2-3

CHEMICAL PREVIEW

HOLDS OUTPUT PRESSURE CONSTANT

regardless of wide changes in flow or in supply pressure



EFFECT OF CHANGES IN FLOW
These curves show the slight effect of flow changes on the NULLMATIC Regulator, compared to the performance of several non-piloted instrument-type regulators. Each was set to deliver 40 p.s.i. at 1 s.c.f.m. flow (with 60 p.s.i. supply), and this setting was maintained while the flow was varied.

THE NULLMATIC PRESSURE REGULATOR

is actually a pressure controller, in which the main valve is operated by a pilot nozzle. Recommended for precision regulation of air and gas pressures, with flows from 0 to a maximum of 45 s.c.f.m.

Bulletin 402 shows standard ranges and performance

VACUUM
PRESSURE
Regulators
Information on
request

MOORE PRODUCTS CO.

914 E. LYCOMING STREET, PHILADELPHIA 24, PA.

When inquiring specify CP A3520 — see handy form pages 2-3



HILLS-McCANN COMPANY
2370 West Nelson Street, Chicago 18, Illinois

HILLS-McCANN Diaphragm Valves

SAUNDERS PATENT

Air and Water Valves - Chemical Valves - Marine Valves - Proportioning Pumps
Force Feed Lubricators - Magnesium Alloy Castings

When inquiring specify CP A3521 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

INSTRUMENTS

megohms of resistance in parallel with 40 mmfd. This compares with 1.1 megohm resistance in parallel with approximately 18 mmfd, when the probe is used. The output voltage can be adjusted from zero to 50 volts R. M. S. with sine wave signals. The ripple output is less than 0.5 volt for all operating conditions and all positions of gain control. The "Video Amplifier" operates on a voltage of 110 to 120 volts, 60 cycles with a power consumption of 100 watts. A compact unit, it weighs 35 pounds, complete with tubes and probe, and occupies a space of $7\frac{3}{4}$ " by 9" by $20\frac{3}{4}$ ".

UNITED CINEPHONE CORP., Dept. CP, Torrington, Conn.

When inquiring specify CP A3522 — see handy form pages 2-3

Instant Flame Failure Safeguard

Photoelectric "fireye" for coal and oil burners



Aluminum housing of tube and amplifier system.

Features — "Fireye" (Type F18T) has been designed to meet the requirements of the industrial user as well as the burner manufacturer. It consists of a phototube and amplifying system, housed in a dust-tight aluminum case. The entire control is mounted directly on the furnace wall and is aligned in a manner which permits the photoelectric cell to observe the flame through a 2" pipe connection which serves as both a sighting tube and a support for the equipment. This simplified installation is made possible by the unique design features of the control. A clear pyrex filter keeps the equipment dust-tight and is mounted on a hinged shutter which permits it to be cleaned without shut-down. A heat-absorbing filter in the lens system as well as an efficient baffle system protects "Fireye" from all radiated heat. The specially designed Fireye phototube permits operation at high ambient temperature. Other features include a pilot light which can be viewed through an angle of 180°, and a time delay element which prevents the relay from dropping out during purely transient flame disturbances. Specifications: Supply: 115-230 Volts 50/60 cycle A.C. Power Consumption: 10 Watts. Output: Single-pole, single-throw Relay. Contact: 5 Amperes or $\frac{1}{2}$ HP at 230 Volts A.C. Operating Range: The front of the control should be located within five feet of the flame which it is to monitor. Weight: 12½ lbs. Ambient Temperature Range: 32° F. - 150° F.

COMBUSTION CONTROL CORP., Dept. CP, 77 Broadway, Cambridge 42, Mass.

When inquiring specify CP A3523 — see handy form pages 2-3

CONTROL PROCESSING TEMPERATURES Accurately STERLING Control No. 117

WHATEVER your process control requirements, you'll get better results with this single seated, tight-closing, balanced pilot operated valve Sterling Series No. 117 Control.

Built for steam pressures up to 125 lbs. Sensitive, quick-acting, functioning upon a drop in air or liquid temperature of 1 degree. Assures close, dependable regulation of temperature to desired setting.

Your JOBBER CAN quote you. Write for latest Bulletin No. 451 covering "Sterling" Temperature Controls.

Sterling INC.

3738 N. Holton St.,
Milwaukee 12, Wis.

When inquiring specify CP A3524 — see handy form pages 2-3

PREVENTS ACCIDENTS and SPLASHING!

**Wahlert
SAFETY
CARBOY
DRAINER**



SAFEGUARDS EMPLOYEES!

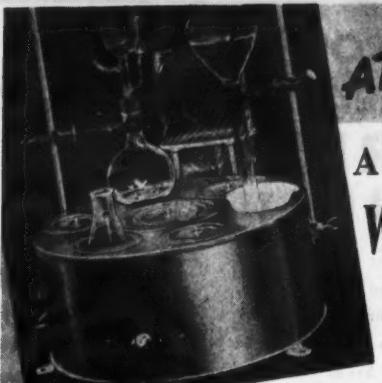
MADE IN 3 SIZES
3 Gallon Size (1 1/2" to 2 1/2")
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13 Gallon.
Large Size (3 1/2" to 3 1/2") Spec-
ial Neck.
Total dimensions are outside di-
ameters.
Send for literature "CEP"

WAHLERT PRODUCTS CORP.

INDUSTRIAL SAFETY AND FIRE EQUIPMENT

27 LAFAYETTE ST., BROOKLYN, N. Y.

When inquiring specify CP A3525 — see handy form pages 2-3



AT LAST!

A better WATER BATH

BARNSTEAD engineers have designed an inexpensive portable water bath which combines the best features of standard models with several original improvements. The exclusive bottle feed permits the bath to be used wherever there is an electric outlet for heating. Busy research and industrial chemists can now have a water bath handy wherever they may be working. Handsome, durable Monel metal exterior.

Saves Time—Saves Work—Saves Space
Ask your laboratory supply dealer for Barnstead Bulletin No. 108 containing complete description and specifications.

Barnstead
STILL & STERILIZER CO., INC.

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Sheldon

LABORATORY EQUIPMENT

Laboratory Wall Table and Fume Hood

SHELDON'S long, continuous, and successful experience; efficient planning service, and unsurpassed production facilities combine to provide the utmost in utility and economy in Laboratory Equipment. Let **SHELDON** Planning Engineers help you plan your research and control Laboratories.

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E. H. SHELDON & COMPANY
MUSKEGON, MICHIGAN

When inquiring specify CP A3528 . . . see information request blank, pgs. 2-3

INSTRUMENTS

Short Range pH Papers 1-14 in Dispensers

A six page folder gives complete details on six new "Hydron Short Range Test Papers." Color changes for small pH intervals are so well defined with these papers that readings can be made to 0.25 pH. The six papers cover the range pH 1 to 14. A transparent plastic dispenser holds two papers in roll form. These short range papers supplement the maker's original "Hydron Wide Range Papers" and are a useful supplement to other methods of determining pH. All papers are furnished in the convenient dispenser. The dispenser protects the paper and offers the great advantage that a strip of any length desired can be withdrawn for the test. There is no container to open and close. Complete "Hydron" set (A 1350) contains range finding "Hydron" A & B together with the six short range papers in four dispensers and two rolls of each of the short range papers. Copies of this folder will be sent on request.

R. P. CARGILLE, Dept. CP, 118 Liberty St., New York 6, N. Y.

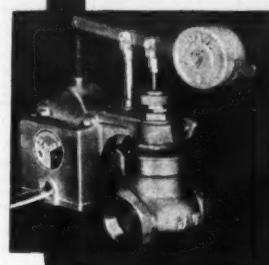
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*

High Pressure Condensate Return

Now ready for distribution is publication (No. 3250) which describes in detail a new high pressure condensate return system which has been creating very favorable reaction from process engineers. The many and varied benefits derived from the use of the system as described in the above mentioned publication include the establishment of higher heat transfer rates, of definite uniformity and more heat from the same pressure of steam complemented by less

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Steam, Air, Water,
Oil Applications,
Extreme Accuracy
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1500 Lbs.

Davis No. 93 Single-Seated,
Solenoid Valve. Sizes 1/2" to
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Davis Solenoid Valves are operated by any device that will make or break an electrical circuit, and are furnished either normally open or normally closed — explosion proof if desired.

Davis valves adapted to solenoid operation include: single seated valves for high or low pressures, balanced valves, butterfly valves, and 3 or 4-way pilot valves. Reciprocating or rotary stem type. For extreme accuracy, the Davis Two-Step Solenoid Valve is available.

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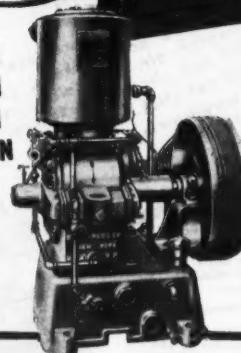
Solenoid Valves
available with the
Dia-Ball leakproof,
packless transmission
unit.

When inquiring specify CP A3529 — see handy form pages 2-3

IMPROVE YOUR VACUUM PROCESSES

BEACH-RUSS TYPE RP HIGH VACUUM PUMPS

DISTILLATION
EVAPORATION
DEHYDRATION
IMPREGNATION
DRYING
REFINING
FILLING
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for
MAGNESIUM
CHEMICALS
BIOLOGICALS
PENICILLIN
PLASMA
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FOODS
STEATITE

In Beach-Russ Pumps, it's the slow speed, direct, positive, rotary, vibrationless motion, effective oil sealing and unique method of exhaust that provide the means for dependable evacuation of your equipment and prevent air infiltration. This means high vacuum — as much as 10 microns — and high volumetric efficiency, as well as lower cost operation on your wet or dry processes. Learn how and why. Write for Catalog No. 80.

BEACH - RUSS COMPANY
46 CHURCH ST. • NEW YORK 7, N. Y.

When inquiring specify CP A3530 — see handy form pages 2-3

Calibrated FACTS on WEARABILITY

Yours in Advance
with
the Taber Abraser

No need for guesswork in the testing of your own or competitor's products for wearability or resistance to surface abrasion. The Taber Abraser gives you the facts with scientific precision—yet the procedure is as practical as it is accurate. Eliminates time-consuming, expensive performance tests. Used by hundreds of manufacturers and research laboratories for testing surface wearing qualities of paints, lacquer, plastics, leather, rubber, paper, electrotypes, etc.

 Write: Full details on the Taber Abraser and the Taber wear testing method described in new handbook. Write for your free copy.

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111CP Goundry Street North Tonawanda, N. Y.

The Taber Test Proves What Wears Best!

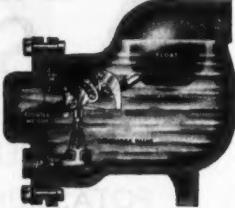
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NICHOLSON TRAPS

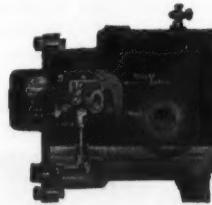
for Steam, Air, Gas

FEATURE

STAINLESS STEEL where it counts



WEIGHT-OPERATED Trap, model JR. For steam, air, gas pressures to 200 lbs.



MODEL WO. Steam pressures to 500 lbs.; air, gasoline to 650 lbs.

While Nicholson Traps embody exclusive engineering features that furnish enormous discharge capacity, they are equally well-known for their "trouble-free long wear" — resulting from the generous use of stainless steel, wherever it counts. For more details send for ...

Catalog 444

W. H. NICHOLSON & CO.

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Valves ★ Traps ★ Steam Specialties

When inquiring specify CP A3532 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

INSTRUMENTS

fuel costs and increased boiler capacity. During the past year several installations have been made involving steam pressures as high as 250 lbs. which have established production rates and lower steam costs in the wall board manufacturing field that are considered phenomenal in efficiency as compared with any past production performances. This system is equally successful in dealing with process equipment utilizing low pressures and particularly so where a definite steam pressure is stabilized by either the available boiler pressure or permissible pressure that can be used on the equipment itself. This publication will be sent to any interested process engineers.

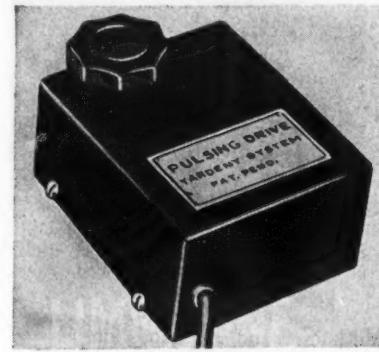
COCHRANE CORP., Dept. CP, 17th & Allegheny Ave., Philadelphia, Pa.

When inquiring specify CP A3533 — see handy form pages 2-3

*

Pulsing Drive for Precision Control of Reversible Motors

Works on all standard currents and frequencies



Direction and extent of motor motion controlled by Knob

Recommended applications include precision control of valves, flaps, radio tuning elements, cranes, lifts, rollers, presses, machine tools, mixers, etc., in fact any motor-driven equipment requiring more precise and more flexible control than is afforded by ordinary push-button methods of control.

Description — Control action is as follows: Slow clockwise rotation of the control knob results in a corresponding motor motion in small increments. Slow counter-clockwise rotation of the control knob causes reverse motor rotation in small increments. Either of the above operations permits the controlled mechanism to be stopped with the highest degree of accuracy. Rapid rotation of the control knob causes faster motor motion and more extended travel. Therefore, the very important features of fine and coarse control are incorporated in this single knob control. By depressing the knob and turning the knob slightly right or left, continuous forward or reverse rotation of the motor can be accomplished. The Pulsing Drive works on all standard currents and frequencies. The extent of fine and coarse control provided by the unit can be made to suit every purpose in a manner that permits quick approach and precise positioning of the controlled object. Pulsing Drives are suitable for inclusion in all existing controlled motor devices and offer many advantages that recommend it for new design projects.

YARDENY ENG'G. CO., Dept. CP, 105 Chambers St., New York 7, N. Y.

When inquiring specify CP A3534 — see handy form pages 2-3

BROAD RANGE SELECTION
in a Pocket-Size Instrument



WESTON VOLT-OHM-METER

(MODEL 564—TYPE 3-C)

An extremely compact WESTON quality instrument with a broad selection of resistance and DC voltage ranges. Ranges available from pin-jacks molded internally with the panel, a toggle-switch connecting meter in circuit as a Voltmeter or Ohmmeter. Read-

ily adjusted for variations in battery potential. For full details on Model 564, and on WESTON Ohmmeters and Volt-Ohm-Milliammeters, send for literature. Weston Electrical Instrument Corporation, 618 Frelinghuysen Avenue, Newark 5, N. J.

WESTON Instruments

When inquiring specify CP A3535 — see handy form pages 2-3

POPS when it SHOULD pop!

Accurate, dependable popping and tight closing are built into this FARRIS Pop Valve No. 1300. Precision machining of the same calibre that has made all FARRIS Safety and Relief Valves so reliable. Light-weight, but sturdy construction for grueling service and long life. Economically priced.

Specify this FARRIS pop valve and you'll soon see why engineers are demanding FARRIS valves for all kinds of safety and relief jobs. We build a complete line to suit most jobs. Write today for our Specifications Bulletin.



Adjusted popping range, proven accurate and safe. For pressures to 250 lbs. steam. Sizes $\frac{1}{2}$ " to $2\frac{1}{2}$ ".

FARRIS ENGINEERING CO.,
350 Commercial Ave., Palisades Park, N. J.

Farris
SAFETY and
RELIEF VALVES

When inquiring specify CP A3536 — see handy form pages 2-3

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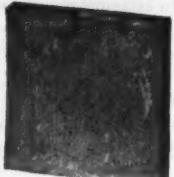
**"My high
Rust I.Q.*
protects metal
equipment!"**

*Inhibitive Quality

Steel Block Test
proves Eagle
Super "66" is
rust-inhibitive!

Here is how one steel
block looked after
being imbedded in a regular insulating
cement during the test period.
Note the extent of the rust. Such
corrosion also occurs on iron and
steel equipment whether heated or
cold.

The other steel block looked like this
after being imbedded in Eagle Super
"66" for the same test period. Note
absence of rust. This shows how
effectively the rust-inhibitive qualities
of Super "66" can protect your
heated equipment.



As shown by Steel Block Test above, Eagle Super "66"...
in addition to doing an unsurpassed job of insulating...
actually inhibits rust!

High efficiency results from "Springy Ball" Structure

Eagle Mineral Wool, principal ingredient of Eagle Super "66", is made up of springy pellets containing countless dead air cells, providing highly efficient insulation. "Springy Ball" structure, created by these resilient pellets, is retained after the insulation dries, thus preserving its extremely low thermal conductivity.



An easy-to-use, all purpose insulation

Eagle Super "66" does not break down or disintegrate. It gives exceptional protection, and is easily applied to almost any shape or size surface. It withstands a full range of temperatures to 1800° F., and if not used at temperatures above 1200° F., can be removed, remixed and reused! Dry coverage is unusually high... cost per sq. ft. is less than most insulating cements and blocks.

To guard Eagle Super "66" from outside damage, we recommend Eagle INSULSEAL... a tough, weather-proof coating that resists scuffing and bumps.

FREE Manual Gives case examples of how industrial insulation effects large fuel savings. Includes Heat Loss Estimate Sheet for your use. Write for copy.



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High and Low Temperature

Made by THE EAGLE-PICHER COMPANY, Cincinnati (1), Ohio
Eagle Super "66" Insulating Cement • Eagle I-T and M-2 Felt • Eagle Supertemp
Block • Eagle Blankets • Eagle Pipe Covering • Eagle Insulseal • Eagle Loose Wool
Eagle Insulistic • Eagle Switchek • Eagle Drycote

When inquiring specify CP A3537 — see handy form pages 2-3



New Materials

New Cellulose Plastic Has Very Short Mold Cycle; Great Weld Strength

Offers unusually fine balance of basic characteristics among present cellulosic plastics

Uses — For a wide variety of industrial and consumer molded parts: radio and instrument housings as well as numerous other types of housings, vacuum cleaner parts, tool handles, steering wheels, spectacle frames, printed dials, electrical insulations, cosmetic cases, mathematical instruments, etc. In addition to molding materials this plastic is available

in sheets of various thicknesses and continuous film.

Features — Because Forticel is a thermoplastic, injection and extrusion molding are the most economical and satisfactory processes for making it into finished articles. In these processes it has much to recommend it. Fine surface lustre and brilliant mold finish characterize molded Forticel articles. There is practically no finishing cost. As a matter of fact, in many cases mechanical polishing will not be able to improve upon the original mold finish. Forticel, as a molding material, has many advantages. First, the molding cycle is very short. While it generally takes a 42 second cycle to mold cellulose acetate in a 20 cavity toothbrush die, it takes less than 30 seconds to mold Forticel in the same die. In this particular case this is equivalent to a 25 percent increase in production per machine which produces more than 2000 pieces per hour. Second, the superior plastic flow of Forticel in molding operations insures practically invisible weld lines where two streams of plastics meet in the die. Weld lines are an important consideration in molding plastic articles for they are often the seat of mechanical as well as visual flaws. Testing shows that Forticel has exceptional strength in the weld. Third, Forticel has a wide and non-critical molding temperature range so that the strong, well finished articles are produced even though the molding temperatures may vary as much as 50 to 60 degrees F. Fourth, Forticel is odorless even at the high temperatures of injection molding. The finished article is neutral to the most critical nose and even when used as containers for lipstick and face powders there is nothing to spoil or detract from the delicate perfume of the contents.

Description — Chemically speaking, Forticel is a straight cellulose ester known as cellulose propionate combined with suitable plasticizers. Cellulose propionate is made in the

form of flake by the reaction of propionic acid and anhydride with cellulose (woodpulp or cotton linters) in the presence of a catalyst. Propionic acid is a 3 carbon acid falling between acetic and butyric in the fatty acid series. (The propionic acid for this new plastic comes from petroleum raw materials, and is manufactured at the parent company's new chemical plant near Bishop, Texas.) Although the availability of propionic acid through this new process was important factor in selecting cellulose propionate as the base for this new plastic, it was by no means the only one. Both chemical considerations and years of laboratory study and experimentation gave assurance that the properties desired were to be found in cellulose propionate. (The first patent on cellulose propionate was granted to the Celanese Corporation in 1931. The important thing in the development of this new material, Forticel, are that Celanese has been able to develop a special type cellulose propionate specifically suited for plastic use, and that the company will be able to enter into large scale production of Forticel in the very near future.) While the present production is limited to a small pilot plant, a steady, moderate output of Forticel is anticipated in the near future and large scale production should follow about a year later in accordance with plans already approved for that purpose. Forticel has a low specific gravity — about 1.2 or less. Where molders obtain 100 molded pieces from a pound of



Spectacle frames are just one of many products advantageously molded from new plastic.

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POTASSIUM - SODIUM
MAGNESIUM - MANGANESE

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For further information write to



Sales Offices

926 Niagara Building • Niagara Falls, N.Y.

When inquiring specify CP A3538 — see handy form pages 2-3

MATERIALS

cellulose acetate, 108 pieces can be obtained from a pound of Forticel. Two of the most outstanding characteristics of Forticel are its great toughness, or high impact strength, and its dimensional stability. This dimensional stability means that Forticel will excel in applications where metal mechanisms of various kinds are to be combined with the plastic—or have to be fitted into a plastic housing. Forticel has the same good electrical properties of cellulose acetate, and in some respects it is even better. It has the same high dielectric strength, but a lower power factor and a lower dielectric constant. Forticel has all the color possibilities of cellulose acetate, which means that molding materials can be supplied in every color, tone, shade and variation that is now available in Lumarith. Colored mottles, intricate patterns and configurations can also be achieved. In addition to molding materials, Forticel will be manufactured into sheets of various thicknesses and continuous film which will give the industries using plastics in these forms the advantages of Forticel's superior strength, stability and electrical properties.

CELANESE PLASTICS CORP., (Div.—Celanese Corp. of America), Dept. CP, 180 Madison Ave., New York 16, N.Y.

When inquiring specify CP A3539—see handy form pages 2-3



Weld-Spatter-Resistant Compound

Non-adherent and semi-adherent types



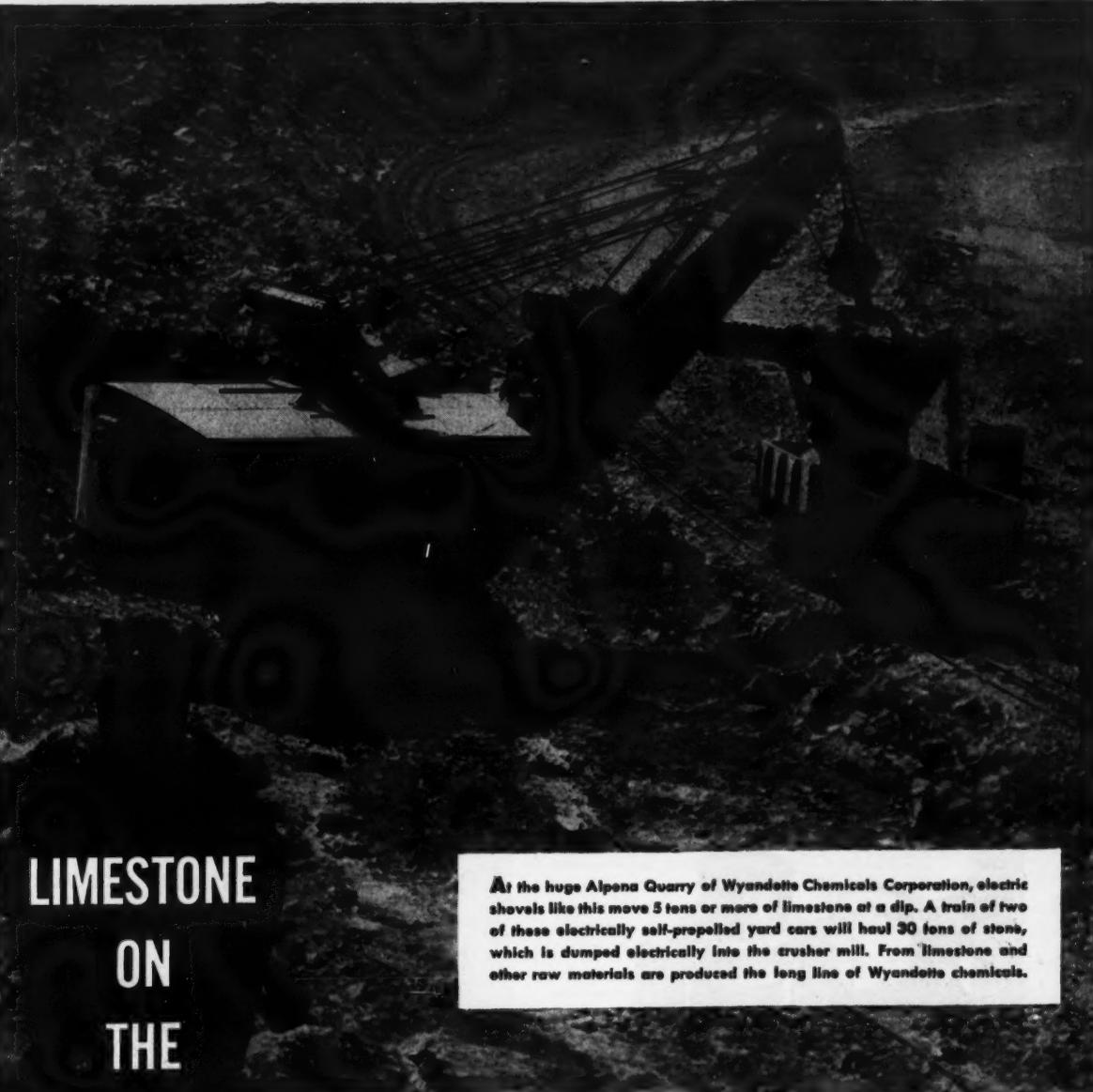
Uses — Two new weld-spatter-resistant compounds, No. 9951 and No. 9952, are specially formulated for use in the welding field whenever weld spatter is undesirable and must be avoided easily and economically.

Description — Furnished in powder form, ready to be mixed with water, the compounds are identical in performance. The only difference between them is that the No. 9951 is nonadherent and can be readily removed with an air hose or a dry cloth, while the No. 9952 is semi-adherent but can be quickly and easily removed with a damp cloth or a direct stream of water. A feature of these compounds is that the surface of the work, even if slightly oily, does not require wetting before they can be applied. Another feature is that a special ingredient in the compounds eliminates the necessity of a water-soluble binder in order to obtain adhesion. Therefore, since the compounds are inert and cannot burn, they are completely smokeless. Available from distributors, the compounds are easily mixed and applied. Water is added slowly until a thin paste is obtained. No lumping occurs, and the mixture can be applied with an ordinary bristle brush. The brush can be safely left in the compounds afterwards or readily cleaned with cold water. These new compounds are economical to use, since one gallon of either will adequately cover 450 to 750 square feet of work, depending upon the thickness with which the compound is applied.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A3540—see handy form pages 2-3

JANUARY - FEBRUARY, 1946



LIMESTONE ON THE MOVE



At the huge Alpena Quarry of Wyandotte Chemicals Corporation, electric shovels like this move 5 tons or more of limestone at a dip. A train of two of these electrically self-propelled yard cars will haul 30 tons of stone, which is dumped electrically into the crusher mill. From limestone and other raw materials are produced the long line of Wyandotte chemicals.

WYANDOTTE CHEMICALS CORPORATION

ONE OF THE WORLD'S GREAT PRODUCERS OF CHEMICALS

SODA ASH

CALCIUM CHLORIDE AROMATIC INTERMEDIATES

CAUSTIC SODA

CHLORINE

DRY ICE

BICARBONATE OF SODA

HYDROGEN

Other Organic and Inorganic
Chemicals

CALCIUM CARBONATE

SODIUM ZINCATES

WYANDOTTE CHEMICALS CORPORATION

MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN



Wyandotte
REG. U. S. PAT. OFF.

When inquiring specify CP A3541 . . . see information request blank, pgs. 2-3

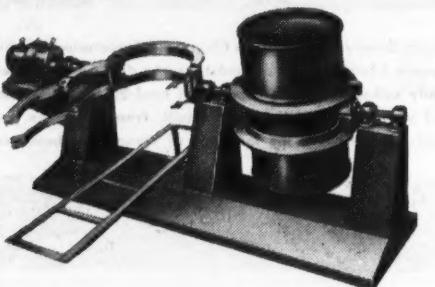
Page 41

MIX IN SUPPLIERS' DRUMS —a better, faster way to mix CHEMICALS, LIQUIDS, PIGMENTS



SINGLE DRUM ROLLER
(Fig. 745)

"U. S." adjustable Drum Rollers are made in standard units to handle one, two, three or four 55-gallon drums, up to 1,000 lbs. load per drum. Eight heavy-duty, rubber-tired wheels support each drum. The wheels are adjustable on the shaft to provide ample clearance for rolling hoops and bung openings. Drum speed is approximately 30 RPM. "U. S." adjustable Drum Rollers can be made to handle any size drum, barrel, or round container.



DOUBLE DRUM TUMBLER
(Fig. 730-D)

Tumbling ACTION

When tumble-mixing or churning is required use "U. S." single or multiple Drum Tumblers. It takes only a few minutes to put the drum in position, fasten the adjustable yoke, and start the tumbling action. Standard "U. S." Drum Tumblers are built to handle one, two or three 5-, 30- or 55-gallon Drums.

Write for Bulletin 261
PROCESS EQUIPMENT DIVISION



U. S. STONEWARE
Since 1865 Akron, Ohio

When inquiring specify CP A3542 — see handy form pages 2-3

Page 42

MATERIALS

Modified Phenolic Oil Soluble Resin Cuts Cooking Period

For high viscosity varnish with retention of fast drying time

Uses — Durez 220V, a new modified phenolic oil soluble resin, was formulated to make possible a higher viscosity varnish while still retaining the exceptionally fast drying time and other desirable properties ordinarily associated with similar resins.

Description — The high solubility in drying oils of the average modified phenolic resin necessitates a longer cooking period to produce a high viscosity varnish than is necessary with certain other resins. It is stated that not only will Durez 220V Resin produce a higher viscosity varnish in a shorter cooking period but that it also has an extremely fast dry. It will cook to a brilliant, very pale, clear varnish or may be used entirely as a "chill back." Even in short cooks there will be no cloud from fast addition of thinner. The resin may also be used in a gloss oil, it is stated.

The manufacturers claim that, using Durez 220V, kauri reduction values of 25% to 30% in short to medium-length varnishes may be obtained. The resin will cold cut in mineral spirits and handles easily in the kettle. Durez 220V is said to have excellent water and chemical resistance as well as durability and color retention.

Detailed information available on request.

DUREZ PLASTIC & CHEMICALS, INC., Dept. CP, North Tonawanda, N. Y.

When inquiring specify CP A3543 — see handy form pages 2-3

Concentrated Hydrogen Peroxide 90% Plus by Weight

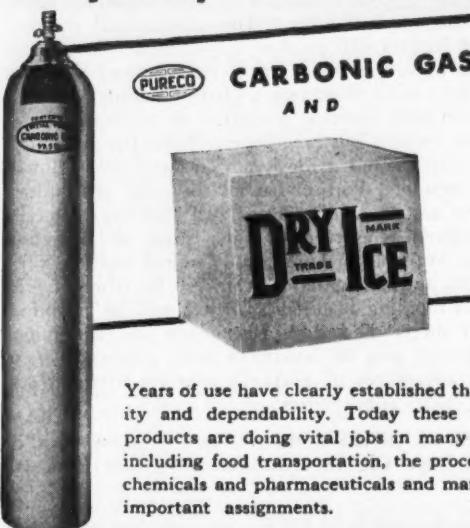
Product achieves high concentration, purity,
stability and safety in handling

Uses — A hydrogen peroxide 90% + by weight is now commercially available. A powerful new oxidant, this remarkable product promises a multitude of peacetime developments. Long an effective oxidant, because it leaves no residue, hydrogen peroxide in this new high concentration, it should be of great utility in fundamental chemical reactions. Not only is the concentrated hydrogen peroxide applicable to many new chemical reactions because of the comparative freedom from water, but many known oxidations take place faster and more completely with this product.

Features — Hydrogen peroxide of high concentration has been considered hazardous for practical use. Intensive research indicates that concentrated peroxide of really high purity is a stable material that may be handled without hazard.

Description — During the war German scientists achieved production of a concentrated hydrogen peroxide. This was used during the latter part of the war alone or with fuels or generate power for such weapons as rockets and V-1 and V-2 bombs. Without knowledge of the German development, this American concentrated hydrogen peroxide after short but intensive research was perfected in late 1944 leading to the present economical production of the product with requisite degree of purity. Recent disclosure of details concerning the German product permits interesting comparison of relative purity, stability and safety in handling and emphasizes the qualities of this domestic devel-

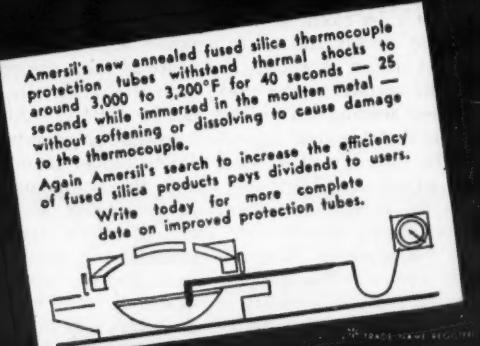
STAND-OUTS in quality and versatility



PURE CARBONIC, INCORPORATED

General Offices: 60 E. 42nd St., New York 17, N. Y.
NATION-WIDE SERVICE — DISTRIBUTING STATIONS IN PRINCIPAL CITIES

When inquiring specify CP A3544 — see handy form pages 2-3



AMERSIL COMPANY Inc.

CHESTNUT AVENUE

ENGELHARD

HILLSIDE S. N.

When inquiring specify CP A3545 — see handy form pages 2-3

CHEMICAL PREVIEW

MATERIALS

opment. As this highly concentrated product yield of oxygen gas is four hundred gallons per gallon of the material it can serve in countless applications. Additional information on request.

BUFFALO-ELECTRO CHEMICAL CO., Dept. CP, Buffalo 7, N. Y.

When inquiring specify CP A3546 — see handy form pages 2-3

Oil Black Pepper Replacement

Offered to meet shortage; very similar to natural product in characteristics and strength

Uses — As a replacement for Oil Black Pepper.

Features — Very similar to the natural oil.

Description — This new replacement for Oil Black Pepper has recently been announced by laboratories of this essential oil organization. Characteristics and flavoring strength of the natural oil are said to be secured with this replacement product. Detailed information as well as free testing samples are available.

MAGNUS, MABEE & REYNARD, INC., Dept. CP, 16 Desbrosses St., New York, N. Y.

When inquiring specify CP A3547 — see handy form pages 2-3



Capryl Alcohol in Three Grades, Solvent, Refined and Chemical

USES: Capryl Alcohol is used as a high boiling solvent in lacquers and enamels, where the addition of a small amount of the product materially aids the leveling and flow properties of the coating because of the slow evaporation rate of capryl alcohol. Capryl Alcohol is not a solvent for nitro-cellulose when used alone, but is activated by true nitro-cellulose solvents such as esters. Capryl Alcohol can, therefore, be used in small proportions in combination with an ester of approximately equal evaporation rate in nitro-cellulose lacquers applied by roller coating or by brushing, where good flow in the latter stages of drying is desirable. Capryl Alcohol is also used in enamels based on urea-formaldehyde resins and alcohol soluble phenolic resins. Also used in urea-formaldehyde resins; is effective anti-foaming agent; used in hydraulic brake fluids.

PROPERTIES: *Harchem Capryl Alcohol* is a secondary octyl alcohol, 2-octanol, with a molecular weight of 130.23. It is a liquid with a characteristic penetrating odor, with properties intermediate between those of the lower alcohols, such as butyl and amyl, and higher alcohols such as lauryl and cetyl. This company produces capryl alcohol in three grades, all of which are available in tank car quantities.

For most solvent applications the solvent grade of capryl alcohol is used because of its lower cost. For most other applications the Refined Grade is employed. There are some uses where a material with a low content of Methyl Hexyl Ketone is required, and for these applications the chemical grade is recommended. Capryl Alcohol is an excellent high boiling solvent with an evaporation rate about 1/20 that of normal butyl acetate, or in about the same range as such solvents as butyl carbitol, cyclohexanol and butyl lactate. Capryl Alcohol is practically insoluble in water, but is miscible with most organic solvents, including aromatic and aliphatic hydrocarbons. Complete details on request.

HARDESTY CHEMICAL CO., INC., Dept. CP, 41 E. 42nd St., New York, N. Y.

When inquiring specify CP A3548 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

Laboratory Research

In the advancement of man's health, there is no "last frontier." New fields are constantly opening up. Old fields keep widehing.

Forward strides in group health are marked by better balanced meals, more nourishing foods, improved housing, safer working conditions. More effective drugs and pharmaceuticals used in therapeutics and preventive medicine are likewise bringing about similar improvement in the well-being of individuals.

Common to the many frontiers of health are research activities maintained uninterruptedly and on an extensive scale. An example is the scope of the research carried on by Chas. Pfizer & Co., Inc.

In the company's laboratories, chemists, biochemists, bacteriologists and other highly trained personnel are engaged in the development of chemicals and vitamins for food enrichment and for the production of pharmaceuticals used in combating disease. Pfizer research has been a major factor in the present day mass production of penicillin.

Since its founding in 1849, Chas. Pfizer & Co., Inc., has followed a policy of progress through research. Chas. Pfizer & Co., Inc., 81 Maiden Lane, New York 7, N. Y.; 444 West Grand Ave., Chicago 10, Ill.



PFIZER Manufacturing Chemists Since 1849

Glycerine Rates High In New-Product Planning

—Here's Why!

GLYCERINE, known to so many chemists in so many different fields, is high on the list in plans for new products because it has the right combination of properties.

For instance, its viscosity is high and uniform. Its high degree of permanence is of value in many industrial fields. Its wholesomeness is proved in foods, confectionery, ice cream, cosmetics, drugs, transparent wrappings. It is useful for this reason in textiles, too, especially where products touch the skin.

The chemical reactivity of glycerine is an advantage—in the making of alkyl resins and monoglycerides for paints; ester gum for varnishes; polyglycerols and chlorohydrins valuable in the food, drug, and resin industries.

The humectancy of glycerine is another advantage—in the processing of tobaccos, as an ingredient in cosmetics, foods, confectionery. Few materials offer such a combination of properties advantageous to the manufacturer.

Perhaps glycerine can be of value to you. For further information, write: Glycerine Producers' Association, G-2, 295 Madison Avenue, New York 17, N. Y.

Research Laboratories, Chicago, Ill.



LONG LASTING! Glycerine helps to give products long life—keeps them from drying out easily. Think of glycerine when you plan new products.



WHOLESAHESOME! Crystal-clear U.S.P. glycerine has real food value, substantially equivalent to carbohydrate. Naturally sweet. Use it in cakes, candies, soft drinks, flavorings!



CHEMICALLY REACTIVE! Many useful chemicals can be made from glycerine. Alkyd resins, ester gum, monoglycerides, polyglycerols, and chlorohydrins are a few.



HUMECTANCY! Glycerine solutions do not markedly differ from glycerine itself in humectant powers. A little goes far. To keep a product like tobacco moist, use glycerine.



When inquiring specify CP A3349 . . . see information request blank, pgs. 2-3

MATERIALS

New Dye Carrying Penetrant Will Simplify Dyeing of Nylon Thread

Makes possible satisfactory dyeing of nylon cakes in package machines

Uses — Package dyeing in Franklin machines offers efficient and economical large-scale production where satisfactory results can be secured through the use of this process. Attempts to dye nylon yarn in cake form by this method often result in uneven dyeing, erratic shades, wastage of dye, and a prohibitive proportion of rejects. For this reason, many dyers of nylon yarn customarily unwind the yarn into skeins, dye the skeins, and rewind the yarn on spools before it is woven into cloth, braiding, etc. Through the use of "Victawet 12", satisfactory dyeing of nylon cakes in package machines has been obtained in numerous plant trials. This material is compatible with both acid and chrome dye liquors, acts as a penetrant and dye carrier, and has non-foaming characteristics. It provides level shades, thorough penetration of the cakes, and efficient use of the dyestuffs, thus eliminating the necessity for unwinding and rewinding, and the possibility of tangling of skeins which occurs when package machines cannot be used.

Descriptions — In the dyeing process nylon yarn cakes are fitted over the perforated hollow spindles of the Franklin machine. The solution is pumped through the spindles and out through the cake for a time, then the flow is reversed and the solution is forced through the cake from the outside toward the spindle. Thus the direction of flow is alternated to equalize treatment of the outer and inner layers. In a typical job, using chrome dye, 200 pounds of nylon cakes (about one pound each) were placed on the spindles of the dyeing machine. After the scouring operation, for removal of spinning oils, 150 gallons of soft water was run into the machine. A slurry of 12 pounds of black dye and 1½ pounds of "Victawet 12" were added to the water in the machine. The temperature was then raised to about 130° F. and a mixture was made consisting of 8 pounds of glacial acetic acid, 15 pounds of anhydrous sodium sulphate, and sufficient water to form a thick slurry. This slurry was then placed in the machine and the temperature of the dye liquor raised to about 150° F. before circulation through the yarn cakes. During the first two hours, the temperature of the bath was gradually brought up to about 200° F. and 8 pounds of formic acid added to further exhaust the dye. After 30 minutes more, 6 pounds of sodium dichromate were added and the solution circulated through the yarn cakes for an additional 40 minutes to mordant the dye on the fibres. The exhausted bath was then drained off, the cakes washed with soft water, and dried overnight at 110° F. in a drying chamber. The dyed yarn had a satisfactory and uniform black color throughout the yarn cake.

In another run, using acid dyes, the dye slurry was made up of 20 ounces of scarlet dye, 0.2 ounces of blue dye, and 1½ pounds of "Victawet 12" in one gallon of water. Ten pounds of anhydrous sodium sulphate and 4 pounds of acetic acid were added directly to the bath and the temperature raised to about 185° F. over a 30-minute period, and then to 205° F. in the next 15 minutes. At this point, 8 pounds of formic acid and an additional 4 pounds of acetic acid were added. The machine was run at boiling temperature for another half hour, drained, and the yarn cakes washed twice — first with 150 gallons of hot, followed by the same quantity of cold water.

MATERIALS

After drying, the yarn was found to be dyed a perfectly even shade of brilliant scarlet color. Other chrome dyes and acid dyes were tested under procedures similar to the above examples which confirmed the leveling and penetrating qualities of Victawet 12.

While these examples refer particularly to the package dyeing of nylon, "Victawet 12" may also be used to advantage in dyeing of nylon piece goods or skeins, particularly with acid or chrome dyes. Further, the penetration, evenness, and speed of application of such dyes to other fibres can be improved through its use. In the examples given, it was employed at the ratio of one pound per hundred gallons of dye liquor, but it is understood that larger amounts will prove desirable in some applications, and the minimum quantity needed to obtain satisfactory results should be determined by experiment.

VICTOR CHEMICAL WORKS, Dept. CP, 141 W. Jackson Blvd., Chicago, Ill.

When inquiring specify CP A3550 — see handy form pages 2-3

Preparation of Rubless Floor Polish

New technical information describing methods of preparing water-resistant rubless floor polishes is now being offered by Carbide and Carbon Chemicals Corporation. A good rubless polish with the desired properties of water resistance, luster, smoothness, ease of manufacture, and uniformity can be made by using as emulsifying agents either triethanolamine or morpholine soaps. Formulas are included as well as new methods for preparing these polishes. This published information Form 5681A) may be obtained on request.

CARBIDE & CARBON CHEMICALS CORPORATION, Dept. CP, 30 East 42nd Street, New York 17, N. Y.

When inquiring specify CP A3551 — see handy form pages 2-3

One Coat Aluminum Coating

An aluminum coating which gives lasting beauty and protection to metal surfaces with only one coat is described in recently issued bulletin. This new coating combines — in a one coat job — the attractive appearance of aluminum with the corrosion-resisting properties of coal tar. The aluminum pigment used is the finest quality of grade "A" (varnish grade) aluminum powder. This powder is thoroughly mixed into the coal tar base, and floats to the surface after application, giving a bright, lustrous aluminum finish. The coating can be either brushed on or sprayed. It will not flow during or after drying. After drying it will not crack, check or peel on exposure to temperatures as low as minus 30° F., nor flow at temperatures as high as 160° F. While designed primarily for use on metal surfaces which are exposed to the atmosphere, to excessive heat of moisture, chemical fumes and gases, and other corrosive agencies, the coating may also be used on cement, tile, wood and brick surfaces. Its many applications include storage tanks for oil, gas, gasoline, and water; metal buildings, towers, stacks, radiators, pipes, fittings, metal gutters, truck and trailer bodies, tractors and other farm equipment, bridges, road markers and guard rails (reflected light is a great help for night driving). The product is furnished mixed and ready for application in one and five gallon cans and 55 gallon drums. Descriptive circular and sample on request.

REILLY TAR & CHEMICAL CORPORATION, Merchants Bank Building, Indianapolis 4, Indiana.

When inquiring specify CP A3552 — see handy form pages 2-3

When COST is a FACTOR... try

ISOPROPYLAMINE



Look into the possibilities of using
this low cost primary aliphatic amine

ISOPROPYLAMINE undergoes all the usual reactions of primary aliphatic amines... and exhibits many of the solvent characteristics of ammonia.

USES: Isopropylamine may be used advantageously as a solvent, a reaction medium... or as a raw material for the synthesis of such materials as dyestuffs, pharmaceuticals, insecticides, bactericides, photographic chemicals, textile specialties, rubber chemicals, and surface-active agents.

Isopropylamine is available as a liquid containing 98%-100% amine, and also as an aqueous solution containing 50%-54% amine. Anhydrous Isopropylamine offers a distinct advantage over lower aliphatic amines, because it is supplied in drums instead of pressure cylinders.

Offered at a lower price than other primary aliphatic amines, limited commercial quantities are now available. Let our Technical Service Division help you adapt Isopropylamine to your particular application.



PROPERTIES OF ISOPROPYLAMINE (98%-100% Amine)		
Molecular Weight	59.11	
Boiling Point, °C	31.8	
Melting Point, °C	-101.2	
Flash Point, Tag Open Cup °C	-26	
°F	-15	
Specific Gravity, 25°C/4°C	0.888	
Refractive Index, 20°C	1.3783	
Ionization Constant	K=5.3 x 10 ⁻⁴	
pH of 0.1 Molar Aqueous Solution	11.97	
Color	Water White	
Vapor Pressure	Temp. °C	mm Hg
	10	300
	20	470
	30	710
	40	1030
	50	1500
Solubility	Miscible with water, alcohol, and other	

COMMERCIAL SOLVENTS

Corporation

17 East 42nd Street, New York 17, N. Y.

When inquiring specify CP A3553 . . . see information request blank, pgs. 2-3

LOOK HERE FOR NEW IDEAS

4,4' DICHLOROBIPHENYL

Mo. wt., 223.10. Distillation range, 313-316.5° C. @ 760 mm. (uncorr.). Melting point, 148-149° C. White crystalline solid. Slightly soluble in alcohol, can be recrystallized from benzene or glacial acetic acid. *Suggested uses:* Intermediate for dyes.

SODIUM AMMONIUM PYROPHOSPHATE

A white, granular, free-flowing solid, very soluble in water and dilute mineral acids. Loses ammonia slowly on exposure to air. Reverts to orthophosphate in water solution, more rapidly at elevated temperatures. pH of 1% solution 8.0. Approximate composition: $\text{Na}_2(\text{NH}_4)_2\text{P}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$. *Suggested uses:* Flame proofing.

LORALKYL PHOSPHORIC ACID

A mixture of mono and di alkyl phosphoric acids having approximately the formulae $(\text{C}_{12}\text{H}_{25})_2\text{H}_2\text{PO}_4$ and $(\text{C}_{12}\text{H}_{25})_2\text{HPO}_4$. This product is a tan colored, waxy solid which has a melting point of about 27° C. Specific gravity at 60° C. is 0.94. Soluble in alcohol, ether, benzene, ligroin and carbon tetrachloride.

SODIUM PHOSPHATE, HEMIBASIC (GRANULAR)

$\text{NaH}_2(\text{PO}_4)_2$. Free flowing granular hygroscopic powder. Soluble in water. pH of 1% solution 2.2. *Suggested uses:* In food products as a substitute for organic fruit acids.

POLYAMYLBIPHENYL

A mixture of amylbiphenyls. Viscous yellow oil. Sp. gr., 0.935 @ 65° C. Refractive index, 1.5627 @ 25° C. Viscosity, approximately 9000 SUS @ 100° F. and 175 SUS @ 212° F. Pour point, 20° F. Insoluble in water, soluble in organic solvents. *Suggested use:* Plasticizer.

CUPRIC ORTHOPHOSPHATE

$\text{Cu}_2(\text{PO}_4)_2$. Free flowing, micro-crystalline blue-green powder. Insoluble in water; soluble in mineral acids. *Suggested uses:* Insecticide, anti-fouling agent.

DIAMMONIUM ACID PYROPHOSPHATE

A white, granular, free-flowing, hygroscopic solid, very soluble in water and dilute mineral acids. Reverts to orthophosphate in water solution, more rapidly at elevated temperatures. pH of 1% solution 4.7. Approximate composition: $(\text{NH}_4)_2\text{H}_2\text{P}_2\text{O}_7$. *Suggested use:* Flame proofing; water softening.

DIAMMONIUM ACID TETRAPOPHOSPHATE

A white, hygroscopic solid, semi-plastic at normal temperatures. Fluidity increases with increasing temperatures. Very soluble in water and dilute mineral acids. Reverts to orthophosphate in water solution, more rapidly at elevated temperatures. pH of 1% solution 2.2. Approximate composition: $(\text{NH}_4)_2\text{H}_4\text{P}_4\text{O}_{10}$. *Suggested uses:* Flame proofing; water softening.

If you are looking for ways to improve product quality or shorten processing time, this list of Monsanto chemicals may offer suggestions for new applications. Study it in relation to your own requirements — then let Monsanto analyze your specific problems and make suggestions that will help improve your production and sales position in 1946 . . . Get in touch with the nearest Monsanto office, or write: MONSANTO CHEMICAL COMPANY, Phosphate Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Cincinnati, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

DIAMMONIUM ACID TRIPHOSPHATE

A white, hygroscopic solid, semi-plastic at normal temperatures. Very soluble in water and dilute mineral acids. Reverts to orthophosphate in water solution, more rapidly at elevated temperatures. pH of 1% solution 2.4. Approximate composition: $(\text{NH}_4)_2\text{H}_2\text{P}_3\text{O}_{10}$. *Suggested uses:* Flame proofing; water softening.

TETRA AMMONIUM PYROPHOSPHATE

A white, granular, hygroscopic solid, very soluble in water and dilute mineral acid. Loses ammonia slowly on exposure to air. Reverts to orthophosphate in water solution, more rapidly at elevated temperatures. pH of 1% solution 8.2. Approximate composition: $(\text{NH}_4)_4\text{P}_2\text{O}_7$. *Suggested use:* Flame proofing.

FERROPHOSPHORUS (SUPERFINE)

Dark gray to black, dense powder. Insoluble in water and dilute acids. Particle size less than 10 microns. *Suggested use:* As pigment.

SODIUM COPPER IRON PYROPHOSPHATE

A green-brown brittle granular solid, insoluble in water and mineral acids. *Suggested use:* As catalyst.

SODIUM CUPRIC PYROPHOSPHATE

$\text{Na}_2\text{CuP}_2\text{O}_7 \cdot x\text{H}_2\text{O}$ — Green to blue powder. Insoluble in water; soluble in dilute mineral acids and in sodium pyrophosphate solution. *Suggested uses:* Catalyst, fungicide and insecticide.

n-OCTYL PHOSPHORIC ACID

A mixture of mono and di octyl phosphoric acids having approximately the formulae $(\text{C}_8\text{H}_{17})_2\text{H}_2\text{PO}_4$ and $(\text{C}_8\text{H}_{17})_2\text{HPO}_4$. A clear, colorless liquid—specific gravity 0.99. It is soluble in alcohol, ether, benzene, ligroin and carbon tetrachloride. Its water solutions have a gel-like character and when neutralized produce a foam.



MATERIALS

Oldsmoloy — Chrome-Nickel-Molybdenum Bronze and Its Food Machinery Applications

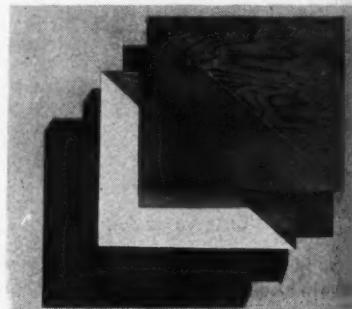
Recently issued catalog details the use of Oldsmoloy for food machinery. This unique, white bronze powder possesses great strength, corrosion resistance, machineability. It takes and retains a high polish. The metal is a chrome-nickel-molybdenum bronze, non-magnetic and non-carbonizing. It welds readily with oxy-acetylene torch and welding rods which may be available. It is being used in the food industry because of its resistance to the corrosive action of most food acids and resistance to the abrasive wear found in association with corrosion. Descriptions are available on the application of the metal for pump parts, pipe fittings, bearings and sprockets used in the citrus juice industry. Another application is in the ice cream industry where resistance to the action of lactic acid is greater than ordinary white bronze. Copies of the bulletin are available on request.

OLDS ALLOYS CO., Dept. CP, South Gate, Cal.

When inquiring specify CP A3555 — see handy form pages 2-3

Fire Retardant Extends Use of Industrial Wood Structures

Flame proof lumber widely used during war; prevents conflagrations in existing structures



Finishes on chemically treated wood

Specifications for flameproofed lumber were issued in 1941. Wartime uses of flameproofed lumber have included hangars for blimps, where trusses, rafters and sheathing were treated; roof trusses and sheathing for incinerator or oven rooms at ordnance plants; flooring, trim, etc. for ships; walks, rails, floors, partitions and electric switch-panel frames for synthetic rubber plants, oil refineries, and high-octane gasoline plants. Value of the material for electrical installations stems from the fact that dry flameproofed lumber will not condense moisture on electrical equipment as concrete will, it will not spread a flash-over fire, and it is highly resistant to the passage of electrical current as steel and other metals are not. Employment of fire-resistant wood or fire walls of the treated lumber within existing structures does much to prevent conflagrations. Addition of fire-resistant woodwork makes so-called "Fire-proof" buildings safer than ever.

Description — Minalith fire retardant, impregnated into wood, prevents fire by chemical reaction. Where flame touches treated timber, the chemicals cause formation of an armor of an unusual, comparatively inert, charcoal which protects the wood underneath against the flame. In effect, the presence of fire retardants in wood builds up the protecting char layer, at the same time the chemicals prevent production of inflammable gases and tars from the wood

When inquiring specify CP A3554 . . . see information request blank, pgs. 2-3

MATERIALS

itself. Heat does not cause this wood to lose temper as do steel beams and trusses in a fire. The compound for flameproofing is used in water solution (diammonium phosphate, 10%; ammonium sulphate, 60%; sodium tetraborate, 10%; boric acid, 20%) for vacuum-pressure impregnation. Wood treated with Minalith does not differ in appearance from ordinary wood, is paintable, easily handled, and measurably stiffer and more abrasion-resistant than plain wood. Underwriters' Laboratories Inc., Chicago, in testing the flameproofed wood rate it two-thirds higher in fire resistance than untreated red oak (used as 100 on the scale of inflammability). A further indication of the extent to which the wood product can resist fire is found in the fact that a single door of flameproofed wood, 2 1/8 inches thick, can resist a flame of 1700 degrees Fahrenheit for one hour.

AMERICAN LUMBER & TREATING CO., Dept. CP,
332 So. Michigan Ave., Chicago, Ill.

When inquiring specify CP A3556 — see handy form pages 2-3

*

Ceramic Has Dimensional Stability of Invar at 1400° F.;—34° F

To be available in any shapes that can be formed
by pressing, extruding, casting

Uses — Advances as potential uses for the new ceramic are such applications as in high-temperature furnaces, insulation for high precision instruments in which dimensional changes must be absolutely minimized, and for many electrical and electronic purposes demanding a low thermal expansion coefficient in high quality ceramic parts. **Features** — A thermal expansion coefficient in the same range as that of Invar, and high resistance to extreme thermal shock are among the properties of a ceramic material recently developed in the research laboratories of General Ceramics and Steatite Corporation, Keasbey, New Jersey.

Known as Material M-244, the new ceramic has been heated to a temperature of 1400° F., and then immediately plunged into an ice water bath. M-244 survived the ordeal without cracking, and retained its original dimensions at both temperature extremes within the same limits characteristic of the nickel-steel alloy long employed in the manufacture of precision instruments and standard measures.

Description — The company plans to supply Material M-244 in any shapes that can be formed by pressing, extruding, or casting.

In announcing the availability of the new product, the company has offered the services of its technical staff to assist industry in exploring and exploiting the properties of the unusual ceramic.

Some of the technical data compiled on M-244 follows:

Coefficient of thermal expansion: Up to 600 deg. F. 1.6×10^{-6}
Up to 1000 deg. F. 1.9×10^{-6}

Modulus of Rupture: 5" span 9.200
2" span 11.500

Dielectric Constant (1000 Kc): 5.30

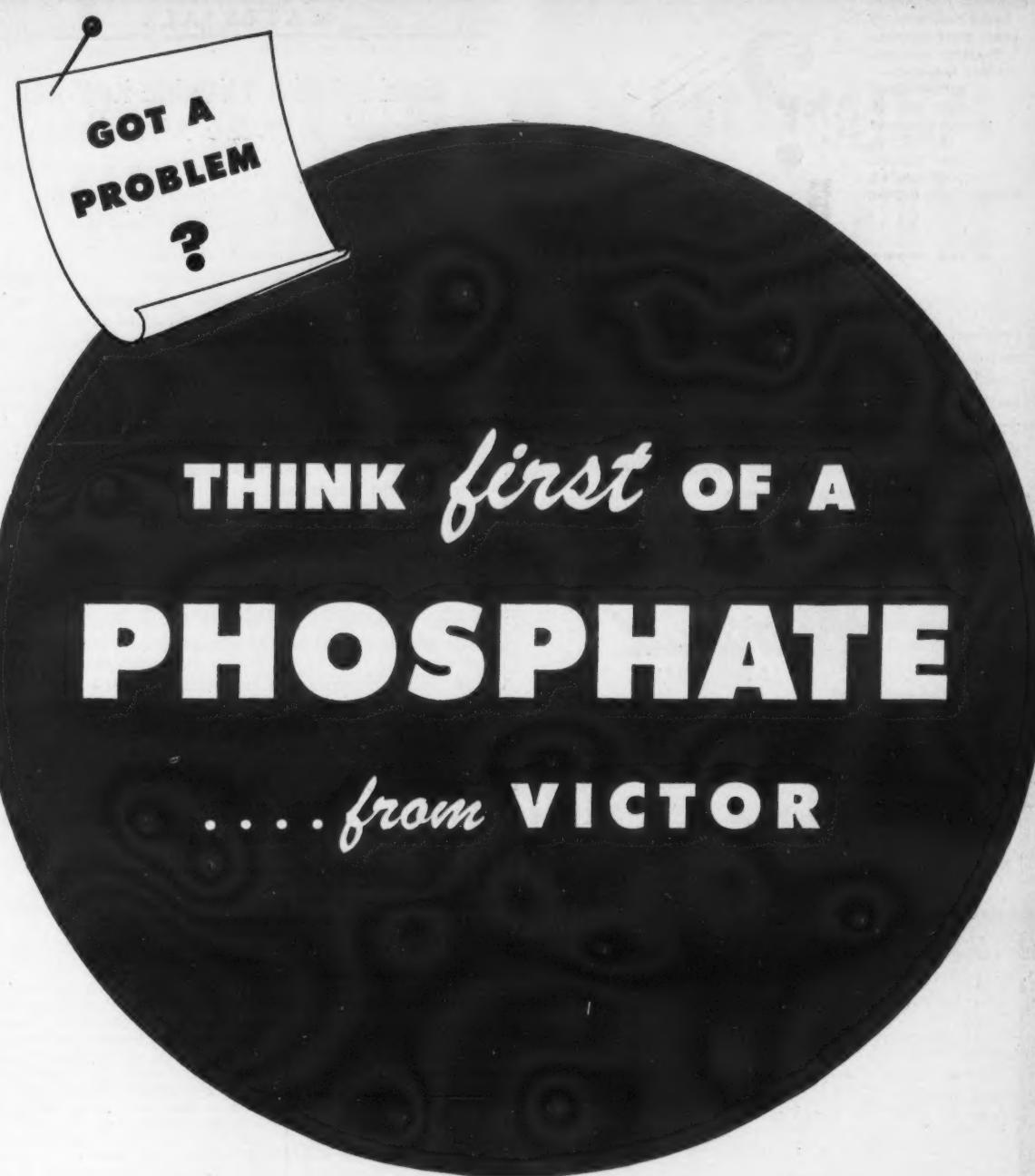
Power Factor:540%

Dielectric Strength:90v/Mil

Material withstands a temperature of 2500 deg. F.

GENERAL CERAMICS & STEATITE CORP., Keasbey,
N. J.

When inquiring specify CP A3557 — see handy form pages 2-3



VICTOR CHEMICAL WORKS

HEADQUARTERS FOR PHOSPHATES • FORMATES • OXALATES

141 West Jackson Boulevard, Chicago 4, Illinois

NEW YORK, N. Y.; KANSAS CITY, MO.; ST. LOUIS, MO.; NASHVILLE, TENN.; GREENSBORO, N. C.
PLANTS: NASHVILLE, TENNESSEE; MT. PLEASANT, TENNESSEE; CHICAGO HEIGHTS, ILLINOIS

When inquiring specify CP A3558 . . . see information request blank, pgs. 2-3

MATERIALS

tained by fruits when properly sulfured. SO₂ added to "must" imparts better color to red wines; aids in controlling acidity in storage and aging of wines; valuable in protecting white table wines against dark colors and bacterial disease. Useful in sterilizing corks, tanks, barrels. *Description* — In fruit and other brining operations cited, the barrel, possibly containing some water or a portion of the brine is placed on a scale and proper amount of fruit added. The barrel head is inserted and barrel removed to brining station. An appropriate amount of calcium compound is added to the fruit before head is replaced, or it may be poured through the bung hole. Then the proper amount of sulfur dioxide is added. An alternative method involves making up the brine in batches in a separate tank. The sulfur dioxide is added as a liquid or gas in measured quantities to a known volume of cold water. This can be accomplished by bubbling SO₂ directly into the water or by means of a SO₂ water mixer valve assembly. If the operation requires the addition of calcium compound, the latter may be placed in the barrel with the fruit. Food products treated with sulfur dioxide may or may not need special treatment to effect removal of undesirable quantities of the sulfur dioxide. In many instances ordinary treatment of the food in subsequent operations will result in loss of considerable sulfur dioxide and usual cooking will serve to release additional amounts. Liquid sulfur dioxide is shipped to food industries in cylinders and drums containing 150 pounds and one ton respectively and in tank cars. When heat is applied to the original container, care must be taken to avoid overheating, since the fuse plugs present in the cylinders and ton drums will melt at 165° F. It is recommended that temperature be held at 120° F. or less. A practical way of heating cylinders automatically is with strip heaters strapped onto the cylinder. These heaters should be equipped with a thermostat which may be set at 100° F. Steam pipes may be used for heating drums, the pipes being placed directly below the drums. Temperature control as indicated above is necessary. Complete information is available concerning use of sulfur dioxide in connection with such foods as grapes, cherries, strawberries, black and red raspberries, fruit juices, apples, apricots, peaches, plums, currants, as well as in wine, vinegar cider manufacture and various other applications.

ANSUL CHEMICAL CO., Dept. CP, Marinette, Wis.

When inquiring specify CP A3563 — see handy form pages 2-3

*

Industrial Protective Cream — Coal Tar Product — Greaseless, Odorless, Stainless

Various distinctive features of protective cream are explained in an attractive two color, two page bulletin. To indicate the wide use of this cream in industry the bulletin lists a number of leading plants using the product. Several interesting case histories are briefly reported. These concern such protective problems as may be encountered in handling cutting oils, phenol-formaldehyde irritations and similar materials of irritating properties. The cream known as "Tarbonis" is a coal tar product. Its use is suggested in cases where workers must be in contact with solvents, coolants, abrasives, dyes, plastic resins, glues, etc. Other features of this cream as listed are that it is odorless, pleasant and greaseless. Copies of bulletin on "Tarbonis" cream on request.

THE TARBONIS CO., Dept. CP, 4300 Euclid Ave., Cleveland, Ohio.

When inquiring specify CP A3564 — see handy form pages 2-3

NEW TURCO STRIPPER REMOVES PAINT WITH COLD WATER RINSE!

**Only Turco Paint-Gon Gives You This
Non-Inflammable, High-Speed Action**

Proved on the toughest of war time jobs, this outstanding Turco paint stripper solves the difficult, time consuming, problem of removing paint through the miracle of Surface Chemistry.

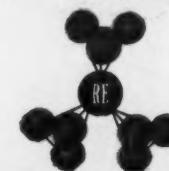
Turco Paint-Gon is applied by brushing, scrubbing or spraying—spreads easily and uniformly, clings well to vertical surfaces. It is swift in action, removes coatings in 5 to 20 minutes, so that they may be flushed away with water. It is free rinsing and leaves no gummy adhesive residue or film. It is non-inflammable (does not require the use of inflammable, volatile solvents).

Turco Paint-Gon is safe and non-corrosive to aluminum, magnesium, steel, cadmium, iron, zinc, or galvanizing.

Turco Paint-Gon is effective on all kinds of coatings *regardless of their condition* — paint enamel, baked enamel, varnish, lacquer, automotive synthetic enamel, etc.

Get the complete story on this amazing development. Phone or write your nearest Turco Field Representative.

"THIS IS TURCO SURFACE CHEMISTRY



© 1944 TURCO PRODUCTS, INC.
Surface Chemistry is the scientific balance and application of these cleaning factors to a specific problem.

WA—Wetting Action
EA—Emulsifying Action
SV—Saponifying Value
SA—Solvent Action
CA—Colloidal Activity
WC—Water Conditioning
BI—Buffer Index
pH—Energy of Alkalinity
TA—Total Alkalinity
RE—Research and Experience,
the combining factor that puts all the above elements into balance and to work on your specific problem.



TURCO PRODUCTS INC.
Dept. CP-1, Box 2649, Los Angeles 54, Calif.
Please send information on the following:

- Turco Paint-Gon
- Materials for Rust & Corrosion Removal
- Turco Steam Cleaning Compounds
- Turco Cold Tank Cleaning Compounds
- Turco Hot Tank Cleaning Compounds

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

When inquiring specify CP A3565 . . . see information request blank, pgs. 2-3

STOP CORROSION

THE PERFORMANCE-PROVED WAY



Get the complete PRUFCOAT STORY

PRUFCOAT

The PERFORMANCE-PROVED protective coating

- ✓ One material for all surfaces
- ✓ Low unit cost
- ✓ Painted on by brush, spray gun or dipping
- ✓ Air dries in a few minutes
- ✓ Applied by your own maintenance crew
- ✓ Long life
- ✓ No baking necessary

PRUFCOAT CUTS MAINTENANCE COSTS

prufcoat's original low cost, ease of application to all surfaces, and long life, make it the lowest cost method of maintenance. For instance, costs only slightly more per gallon than ordinary paint, costs no more to apply, and can be used on all concrete, structural steel, floors, tanks, pipes and machinery to provide positive protection against acids, alkalies, oil and water. Thus, one material for all surfaces, ease of application and less frequent repair jobs, make

maintenance savings certain. Fitted in hundreds of America's largest industrial plants under the severest type of conditions, prufcoat is being used today not only in areas where corrosion is a serious problem, but on all structural steel, handling equipment, concrete, masonry, stone, brick, etc., — both inside and outside. For prufcoat cuts maintenance costs whether the corrosion problem is mild or severe.

PRUFCOAT LABORATORIES, Incorporated
Plant: 63 Main Street, Cambridge 42, Massachusetts
Sales Office: 50 East 42nd Street, New York 17, New York

SEND FOR this 11-page, fully illustrated and documented booklet, just off the press. Tells the complete story about what Prufcoat does and how it does it, *including case histories and full directions for* Prufcoating concrete, structural steel, floors, pipes, tanks and machinery. Write for your free copy today.

gives Positive Protection against
ACIDS, ALKALIS, OIL & WATER!

Prufoat Laboratories, Incorporated • 50 East 42nd Street, New York 17, N. Y.

When inquiring specify CP A3566 . . . see information request blank, pgs. 2-3

MATERIALS

Acid Stable Dispersing Agents

Cosmetic, pharmaceutical, paint applications

Uses — These acid stable dispersing agents are of value to cosmetic, pharmaceutical, textile and paint industries and are suggested for applications wherever a dispersing, thickening or wetting agent is needed which is to be used in the presence of acids, bases or mineral salts.

Features — These agents are high molecular weight esters expressly made to form dispersions which are stable in the presence of acids and mineral salts and over a wide pH range. They all possess water absorption powers and their water dispersions or solutions are quite viscose. Either water in oil or oil in water emulsions can be made with them by the correct choice of ingredients. They possess definite wetting powers.

Description — All are soluble in alcohols, aldehydes, ketones, vegetable oils, glycerine, fatty acids, glycols and aromatic hydrocarbons. Three of these are specified as water soluble (Betanols 152, 564 and 701). The others are water dispersible. One (Betanol 401) is soluble in petroleum solvents; three (Betanols 152, 560 and 564) are insoluble; the rest are dispersible. Three (Betanols 401, 520 and 540) are completely soluble in mineral oils; the rest partly soluble. Four (Betanols 152, 540, 564 and 701) are soluble in mineral acids; the rest dispersible. Two (Betanols 152 and 701) are soluble in 10% CaCl_2 , one (Betanol 560) insoluble and the rest dispersible. Three (Betanols 152, 520 and 560) are insoluble in 10% $\text{Al}_2(\text{SO}_4)_3$; rest are dispersible. Four (Betanols 520, 540, 560 and 564) are insoluble in 10% Na_3PO_4 ; the rest are dispersible. Tabulated data showing form, color, melting point and the behavior of the various agents in various solvents and solutions and other information is available upon request.

BEACON CO., Dept. CP, 97 Bickford St., Boston, Mass.

When inquiring specify CP A3567 — see handy form pages 2-3

★

No Solvents Required In Extruding Tenite Into Strips, Rods, Tubes

A revised and enlarged edition of the booklet, *Tenite Extrusion*, which includes a detailed description of the extrusion of sheeting with the use of a circular die, has been issued by Tennessee Eastman Corporation. The booklet describes how Tenite is formed by the dry-extrusion process — into strips, tubes, rods, monofilaments, sheeting, and various profile sections. No solvents are used; hence, both the cost of the solvent and the time usually required for drying or seasoning are saved. "Shrinkage due to evaporation of solvent is eliminated, with the result that extruded sections can be held to very close tolerances." In addition, since scrap material may be re-used, 100 per cent utility of the material is said to be obtained.

The extrusion machine is described, together with several die designs for the extrusion of Tenite. These designs range from the simplest, which consists essentially of a die plate and retainer block, to the more complicated designs required for tubes. Accompanying diagrams illustrate tube dies of both fixed and adjustable type and designs for flat strip, rod, channel, counter edge, and table edge. Auxiliary equipment is also described — screens to assist in homogenizing the material; conveyor belts to maintain uniform tension at the orifice while the extruded section is being taken off and cooled; devices for cooling the extruded section; and reeling and cutoff devices. Sheet may be extruded by the use of either a flat flared or circular die. The latter, said to be a somewhat spe-

MATERIALS

cialized operation, is described in considerable detail, with specific reference to Tenite I, H₂ flow.

In this process, the heated plastic is first forced through a screen to insure homogeneity, then out through a die heated from the outside to 430° F. by a hinged-jacket heater. Heat, it is stated, may be supplied by an electric cartridge unit in the core of the die, although this is not ordinary practice.

Issuing in tubular form, the material is split open at the bottom by a wedge-shaped brass block, the arc of which "can be increased within limits to reduce the width of the sheeting." To support and flatten the sheet, air heated to 220° F. is blown upon the soft underside and top side of the sheeting from carefully-spaced distributors. Hot air is used, because cold air solidifies the sheet too quickly, occasions wrinkles, and causes plasticizer fumes to condense and spatter onto the sheet. For successful flattening of the sheet, proper manipulation of the air is said to be of paramount importance.

The sheeting next passes over a water-cooled spreader bar, which "serves to flatten the sheet without wrinkling or folding." From there, it is drawn off to be wound in coils or cut to length; or "it may be polished by being put through appropriate spring-loaded rolls with very accurate control of temperature." The procedures to be followed in either case are outlined, the polishing operation being supplemented with a diagrammatic drawing of the equipment to be used. Copies of the new edition of *Tenite Extrusion* may be obtained on request.

EASTMAN KODAK CO., Dept. CP, 10 E. 42nd St., New York 16, N. Y.

When inquiring specify CP A3568 — see handy form pages 2-3

Vibro-Insulators & Rubber Lined Units

Covering a wide range, a new 12-page booklet on rubber and synthetic products created to suggest application of these products to industrial designers has just been published by The B. F. Goodrich Company, Akron, Ohio. Copies are now available upon request. Opening pages are devoted to Koroseal, the synthetic flexible material which has many uses. Physical and chemical properties of Koroseal are outlined in detail, as well as a large number of uses where it has solved problems which had proved baffling when other materials were tried. Two pages are given to a description of the company's diversified line of Vibro-Insulators, devices of rubber and metal which reduce vibrations of machinery and the buildings in which they are situated, as well as lessening fatigue of workers and saving wear and tear of equipment. The company's Torsilastic rubber spring, in which rubber in torsion is used as a suspension for vehicles, is included and its advantages over older materials described. Rubber lined equipment, including tanks and tank cars for handling corrosive acids or alkalies, as well as valves, pipes and fittings which serve the same purpose are described and pictured, with a table of dimensions of standard Vulcalock rubber lined tanks. Other products of interest to the developers of equipment used by industry outlined are molded, extruded and lathe cut rubber; synthetic rubber and plastic products; Anode rubber coverings for any smooth or irregular shaped metal part; the new pressure sealing Zipper, a water-tight, airtight and pressure-tight seal that zips up swiftly; water-lubricated Cutless rubber bearings; FHP and Multi-V belts, adhesives, sponge, hard and sheet rubber.

B. F. GOODRICH CO., Dept. CP, Akron, Ohio.

When inquiring specify CP A3569 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

CHECK THESE 2 *
PERFORMANCE PROVED
CEMENTS AGAINST YOUR
NEEDS!

N-100 SELF-CURING ADHESIVE *
for cementing together or one to another raw fabrics, coated fabrics, molded parts, leather, wood, paper, tubing, sponge, channel-stock, stripping and sheet material...as a Sealant for rubber and synthetic valve seats, gaskets, etc.

A Two-Part Neoprene Base Formula of Brush Viscosity and Neutral in Color
... Extremely high green strength... Good strength after standing 3 to 4 hours... Optimum cure reached in 10 days at 68-70°F (in 16 hours at 100-125°F; in 1 hour at 255-260°F)... Excellent water, oil, flame and delamination resistance... Chemical resistance to acetic acid, alcohols, aliphatic hydrocarbons, ammonia, calcium chloride, copper sulphate, fatty acids, hydrochloric acid, oxalic acid, phenol, sodium hydroxide, sulfuric acid... Extremely high shear strength... Contains no Benzol.

N-800 NEOPRENE PUTTY *
for Filling rubber, neoprene and other synthetic rubber parts... for Repairing wire cable... as a Binder... and for Caulking.

A Two-Part Neoprene Base Formula of Putty Consistency and Black in Color
... Bonds without Primers... Optimum cure reached in 10 days at 68-70°F (in 16 hours at 100-125°F; in 1 hour at 255-260°F)... High dielectric strength... Excellent water, oil and flame resistance... Chemical resistance to acetic acid, alcohols, aliphatic hydrocarbons, ammonia, calcium chloride, copper sulphate, fatty acids, hydrochloric acid, oxalic acid, phenol, sodium hydroxide, sulfuric acid.

Address all inquiries to the Union Bay State Chemical Company, Rubber Chemicals Division, 30 Harvard St., Cambridge 42, Massachusetts.



* Both of these formulas have been performance-proved in important war production work over a period of several years.

UNION BAY STATE
Chemical Company

Serving Industry with Creative Chemistry

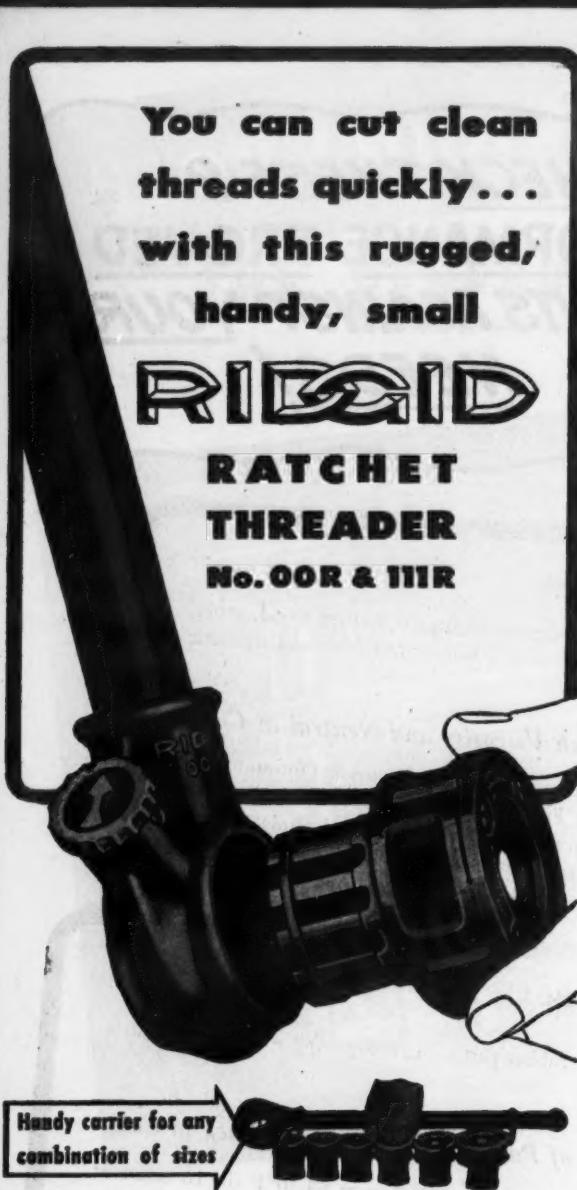
ORGANIC CHEMICALS • SYNTHETIC LATEX • SYNTHETIC RUBBER
PLASTICS • INDUSTRIAL ADHESIVES • DISPERSIONS
COATING COMPOUNDS • IMPREGNATING MATERIALS • COMBINING CEMENTS

When inquiring specify CP A3570 . . . see information request blank, pgs. 2-3

You can cut clean
threads quickly...
with this rugged,
handy, small

RIDGID

**RATCHET
THREADER**
No. 00R & 111R



Handy carrier for any
combination of sizes

Quick and easy does it with this tough little steel-and-malleable ratchet die stock — heat-treated toolsteel dies, precision cut and factory tested, give you smooth perfect threads. Die heads snap in from either side, can't fall out. No special dies are needed for close-to-wall threads. External ratchet No. 00R for $\frac{1}{8}$ " to 1" pipe, No. 111R for $\frac{1}{8}$ " to $\frac{1}{4}$ " — internal ratchet No. 0R for $\frac{1}{8}$ " to 1", No. 11R for $\frac{1}{8}$ " to $\frac{1}{4}$ ". For durable efficient work-saver threaders... ask your Supply House for RIDGIDS.

RIDGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U.S.A.

When inquiring specify CP A3571 — see handy form pages 2-3

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MATERIALS

Alkyd Resin for Architectural White Alkyd Enamels

Impart color, fine color retention and brushing qualities

Uses — Architectural white alkyd enamels which exhibit outstanding color and gloss retention combined with materially improved brushing qualities, are now possible through the development of a new alkyd resin, Duraplex D-65.

Description — This new phthalic alkyd possesses inherent gloss, and hence requires no added resins or varnishes with consequent darkening of color. Among other features of Duraplex D-65 are its excellent pigment stability and desirable drying properties. In addition, preliminary studies on Duraplex D-65 indicate durability exceeding that of corresponding type alkyls having similar oil length and conventional formulation. The physical constants of Duraplex D-65 are as follows: Solids — 70%; Acid Number — 8 Maximum; Gravity — 0.96; Viscosity — C-F (50% in M.T.); Color (ash) — 5-8. Recommended formulations and technical notes are available upon request.

THE RESINOUS PRODUCTS & CHEMICAL COMPANY, Dept. CP, Philadelphia, Pa.

When inquiring specify CP A3572 — see handy form pages 2-3

Condensed Fish Solubles for Use As Protein Supplement

Contain protein and are source of certain amino acids and vitamins; effective in supplementing protein of soybean meal

Uses — These condensed fish solubles or so called "fish presswater" have been indicated as being quite effective in applications where protein supplement is required as for example in animal and poultry feeds.

Features — The product contains about 30% protein and is also a source of certain amino acids and vitamins, a factor in making them suitable for the uses cited.

Description — The fish solubles are secured from water contained in the body of the fish, which is expressed when the fish is pressed for the removal of oil. The water is evaporated under vacuum to a consistency of approximately 50% moisture and 50% solids. Present method of shipment largely in tank cars. Additional information on request.

WILBUR-ELLIS CO., Dept CP, 430 California St., San Francisco 4, Calif.

When inquiring specify CP A3573 — see handy form pages 2-3

Waterproof Paper Sealer and Wood Crate Coating

Applied hot or cold by brush, dip, spray

Uses — Laminating material for paper; adhesive for paper on wooden or metal surfaces; when dried on Kraft paper as a heat sealing wrapper approved for Method 1A packaging; sealer for lumber; mending agent for Method 11 Barriers; hot dip build-up coating.

Description — A mineral, rubber-like adhesive; this waterproof paper sealer or wood crate coating has passed the cyclic exposure and rough handling tests and is now avail-

LEAKPROOF JOINTS



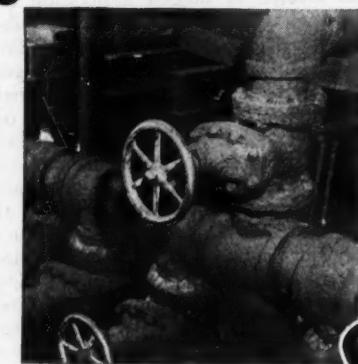
CRANE PACKING COMPANY

BALTIMORE, BOSTON, BIRMINGHAM, CLEVELAND, DETROIT, HAMILTON, LOS ANGELES, NEW ORLEANS, NEW YORK, PHILADELPHIA, PITTSBURGH, ST. LOUIS

CRANE PACKING CO. LTD., MILTON, TORONTO, ONTARIO, CANADA

When inquiring specify CP A3574 — see handy form pages 2-3

STOP CONDENSATION DRIP - PREVENT CORROSION



Try this
tested
plastic
cork
coating

INDUSTRIAL
NoDrip

A SURE CURE — NoDrip, used and endorsed by leading industrial firms, forms a permanent, seamless jacket around pipes, tanks, vats, etc.; shuts out heat, cold, air, moisture; stops condensation dripping; prevents corrosion and rust. Acid, alkali and brine resistant. NoDrip protects and prolongs life of equipment, reduces costly maintenance and replacements. A trial in your plant will prove its merit. 1, 5 and 55 gal. drums. Order from your Supply House.

EASY APPLICATION

Applied like plaster with brush, trowel or spray. Adheres to metal, cement, brick, wood.

NoDrip Handbook on Request

J.W. MORTELL CO.
Technical Coatings Since 1895
530, Birch St., Kankakee, Ill.

When inquiring specify CP A3575 — see handy form pages 2-3

CHEMICAL PREVIEW

JA

AIRCO NITROGEN

"Prescription-Blended" to meet your specific requirements

No matter what your need may be, Airco can supply nitrogen in a wide range of grades—a type meeting your specifications. The uniformity and adherence to specifications of Airco Nitrogen are definite factors contributing to its satisfactory use.

Airco's complete line of gases includes Hydrogen and Rare Gases.

Your nearby Airco office can supply your needs



AIR REDUCTION

General Offices: 80 East 42nd Street, New York 17, N.Y.
In Texas: Magnolia Airco Gas Prod. Co. • Gen. Offices: Houston 1, Texas
Offices in all Principal Cities

Represented Internationally by
Airco Export Corporation

When inquiring specify CP A3576—see handy form pages 2-3

HOW MUCH PROTECTION?



There is a WEST Cream to Meet Your Industry's PARTICULAR Hazard

While any cream may give some degree of protection, West makes a series of protective cream formulas. Tests have shown that each specific hazard demands proper, specific, scientific protection. West's formulas are designed to furnish the fullest possible protection.

Send for booklet



When inquiring specify CP A3577—see handy form pages 2-3

JANUARY - FEBRUARY, 1946

MATERIALS

able for industrial use.

Impervious to water and not affected by fungi, the Sealer is listed as a suitable material with most of the branches of the Armed Forces in the processing and packaging of war materials. It can be used in conjunction with waterproof paper in sealing of seams, closures and joints in wooden boxes; as an adhesive for gluing waterproof paper liners to wood boxes or closed crates; sealing carton flaps and waterproof paper bags. Actual tests have indicated the Sealer is a moisture vapor barrier. It is easy to apply by brush, spray or dip method; it dries fast and forms a smooth, uniform coat with no lumps; can be applied cold or hot, as desired. Among various uses of the "Carbozite Sealer" are: laminating material for paper; adhesive for paper on wooden or metal surfaces; when dried on Kraft paper as a Heat Sealing Wrapper approved for Method 1A Packaging; sealer for lumber to prevent shrinkage, warping and cracking; mending agent for Method II Barriers; hot dip build-up coating. Further details may be obtained on request.

CARBOZITE CORP., Dept. CP, First National Bank Bldg., Pittsburgh 2, Pa.

When inquiring specify CP A3578—see handy form pages 2-3

*

Publications Reports on Important Developments In Alloys, Metals, Allied Chemical Compounds

The Vanadium Corporation of America is resuming publication of their house organ, "The Vancoram Review," which will be issued quarterly and is being presented in an entirely new and attractive form. The publication is to serve as a "practical, impartial aid to the continued advancement and progress of alloys, metals, and allied chemical compounds." Articles in a current issue cover applications of Vanadium in the aircraft, railroad equipment and cast steel industries; a new graphizing alloy for cast iron; and use of Grainal Alloys for improvement of N. E. specification steels, and in making anchor chains. Special departments are devoted to new products, and abstracts of current literature. Principal products of the Vanadium Corporation and their applications are also listed. The publication is an informative bulletin for those who are interested in the development and application of ferro-alloys, metals, in general, and allied chemical compounds.

VANADIUM CORP. OF AMERICA, Dept. CP, 420 Lexington Ave., New York 17, N. Y.

When inquiring specify CP A3579—see handy form pages 2-3

*

Concrete Floor Protection

A new illustrated 4-page folder tells how a special liquid chemical floor hardener, extends the life of concrete and terrazzo floors. Of interest to maintenance executives and engineers in commercial, industrial and institutional buildings, the folder describes how "Lapidolized" floors give protection against (1) disintegration resulting from concrete dust; (2) acids, salts and alkalies; (3) effects of alternate freezing and thawing; and (4) mineral, vegetable and animal oils. Condensed versions of laboratory tests which show the effectiveness of this treatment are included in the folder as is application data, showing the ease and economy by which Lapidolizing may be done. A copy of the folder may be obtained on request.

L. SONNEBORN, INC., (Bldg. Products Div.), Dept. CP, 88 Lexington Ave., New York 16, N. Y.

When inquiring specify CP A3580—see handy form pages 2-3

You do it faster,
more easily, with
this guaranteed

RIGID

**HEAVY-DUTY
PIPE WRENCH**



This means no more wrench housing repair expense!

● Pick up a **RIGID** by the powerful comfort-grip I-beam handle and it feels like an unusually efficient wrench. It is. The precision-cut alloy jaws grip pipe firmly, let go instantly. Adjusting nut spins easily in all sizes, won't bind. You like the handy pipe scale on the full-floating hookjaw, the replaceable heeljaw. And the guaranteed housing assures you long expense-free service — most for your money. Ask your Supply House.



When inquiring specify CP A3581—see handy form pages 2-3

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★ IDEAS ★

Industrial ingenuity constantly hatches new ideas, many of which can be applied to similar problems in other plants. The Editors have selected these ideas and developments because of their interest and possible application in specific plant problems. If you would like more information on any of these, write direct to the manufacturers.

Research Indicates Ultraviolet Light Impairs Visual Functions

Rays in range previously considered harmless delay dark adaptations, impair visual functions even when eyes show no obvious injury

Experiments with baby chicks reveal that exposure of eyes to invisible ultraviolet light ranging from 300 to 365 millimicrons in wave length — a range previously considered harmless by some authorities — delays dark adaptation and impairs visual functions even when the eyes themselves show no obvious injury. Dr. Ernst Wolf, of the Harvard Biological Laboratories, reports the discovery in the August issue of the Proceedings of the National Academy of Sciences. The eye research was sponsored by American Optical Company, Southbridge, Mass. As human eyes could not be utilized in view of the potential danger,

effects varying from slight irritations to severe burns. The welding arc emits ultraviolet ranging from 190 millimicrons to the visible region. At the beach the rays extend from about 290 millimicrons up to the visible, depending on atmospheric conditions. However, the only wave lengths producing easily observable pathological conditions in the chicks' eyes are those shorter than about 300 millimicrons. Previously, some authorities had assumed that if ultraviolet below 300 millimicrons were excluded by filter lenses the possibility of eye injuries would be eliminated.

The conclusions that ultraviolet radiations in the interval from 300 to 365 millimicrons are also injurious to eyesight were obtained as follows:

First, the chicks were exposed for an hour to ultraviolet light emitted by quartz mercury vapor lamps. Severe exterior pathological conditions were observed. The lights were then switched off. After 60 minutes in complete darkness the chicks' eyes, if unexposed, would have been completely adapted to darkness, and their visual functions normal. For testing their vision, each chick was placed in a glass jar surrounded by a glass cylinder bearing alternate transparent and opaque vertical stripes. The stripe system moved at a given rate and produced flicker to which the chick responded by jerky head motions. The experiment determined the intensity of light needed for flicker recog-



Chicks exposed to light from lamps in cylinders

Dr. Wolf selected baby chicks for testing because the visual characteristics of their eyes approximate closely those of a human, and also because chicks obligingly keep their eyes wide open during exposure to ultraviolet. After a year's study of the effects, he discovered that the ultraviolet light in question definitely impaired the functioning of the chicks' visual mechanism even though under some conditions no obvious pathological changes in the eyes could be observed. He therefore concludes that protective lenses excluding the dangerous rays should be worn by welders and their helpers, skiers, fliers, sun bathers and others exposed to the radiations.

In explaining these investigations it may be pointed out that light rays can be accurately measured. Visible light rays range in length from about 400 to 750 millimicrons (a millimicron is $1/25,400,000$ of an inch). The invisible ultraviolet region starts below 400 millimicrons and includes all shorter waves until air absorbs them around 190 millimicrons.

In the past it has been recognized that excessive ultraviolet encountered in welding operations, in the arctic regions or at the sea-shore may damage eyes, the degree of injurious

NIAGARA Aero Cooling Does It Better! And Saves Cooling Water Cost

Close Temperature Control in Cooling Fluids

NIAGARA Aero Heat Exchanger cools liquids or gases to 10° of atmospheric wet bulb temperature and holds to tolerances of 2° F.

Compressed Air After Cooling

Furnishes drier compressed air—eliminates half the moisture allowed by conventional after-cooling methods.

Holding Quenching Baths to Temperature

Heat treaters increase production, improve quality, decrease rejections by using NIAGARA Aero Heat Exchanger to control quenching bath temperatures.

Condensing Refrigerant Gases

NIAGARA Duo-Pass Aero Condenser increases refrigerating plant capacity, saves power. Duo-Pass prevents scaling and clogging of condensers.

NIAGARA AERO HEAT EXCHANGER is used in liquid cooling in industrial and chemical processes, water jacket cooling, hydraulic fluid, transformer oil, lubricating and cutting oil cooling, vapor and steam condensing.

NIAGARA BLOWER COMPANY

Over 30 Years of Service in Industrial Air Engineering
Dept. CP-16, 6 E. 45th St. NEW YORK 17, N.Y.
Field Engineering Offices in Principal Cities

When inquiring specify CP A3583 — see handy form pages 2-3

CHEMICAL PREVIEW



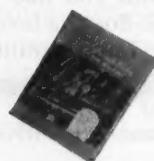
HOW FIBERGLAS* BEAT THE WEATHERMAN

Predictions of "continued cold" can mean serious trouble—unless pipes are adequately insulated. Fiberglas Industrial Insulation, furnished in forms to meet every interior and exterior requirement, is helping industry avoid the costly effects of weather changes and extremes.

During a natural gas shortage, a West Virginia concern built its own gas-producing unit. Efficient operation was aided by the application of Fiberglas insulating blankets, pipe covering and insulating cement. Moisture condensation in two 18-inch gas lines, which had caused severe pressure drops, was eliminated by insulating more than a mile of lines with Fiberglas pipe insulation. And this same highly efficient thermal insulation, installed on outside water lines, prevented freezing.

The illustrated booklet, "Fiberglas Insulations for Industry", will give you complete information about all of the forms of Fiberglas Industrial Insulation materials. Write for your copy today. Find out how this better material can help you "beat the weatherman" and save money. Owens-Corning Fiberglas Corp., 1959 Nicholas Bldg., Toledo 1, Ohio.

In Canada, Fiberglas Canada Ltd., Ottawa, Ontario.



FIBERGLAS

U.S. Reg. U. S. Pat. Off.

THERMAL INSULATION

OTHER FIBERGLAS PRODUCTS:
ELECTRICAL INSULATION MATERIALS • DUST-STOP® AIR FILTERS
FIBERGLAS YARNS AND CLOTHS • FIBROUS GLASS MATS

When inquiring specify CP A3582 — see handy form pages 2-3

IDEAS

nition. In comparison with unexposed chicks, the test chicks, due to ultraviolet injuries, required 45 times as much light to recognize the flickering stripes. Not until three days later could their eyes see normally again.

By shielding the ultraviolet lamps with protective glass filters that cut out the invisible ultraviolet light at about 365 millimicrons and below, it was discovered that the eyes of chicks exposed to the filtered light functioned normally. The lamps were then shielded with a series of less efficient glass filters that cut out shorter ultraviolet radiations. Repeated experiments with these filters revealed that ultraviolet below about 365 millimicrons impaired visual functions in varying degrees depending on the wave length transmitted. The conclusion was that these rays are therefore dangerous, and should be excluded from human eyes to prevent impairment of vision. (American Optical Co., Southbridge, Mass.).

Magnifying Lights — An Aid to First Aid in Industry

Particularly valuable in removing foreign bodies from eye; splinters from fingers, etc.



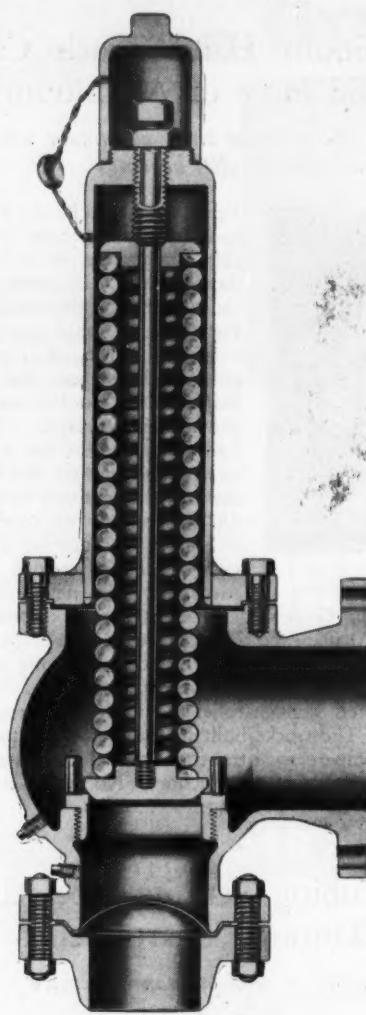
Magnifying Lights: lenses 4" & 5" sizes

Combination light and magnifying units featuring finger tip control offer welcome advantages in first aid application in industrial plants. Magnified image under properly directed and diffused light is instantly available. In spite of the ease of adjustment the design used assures that unit remains securely as placed, resisting vibration, shock or any displacement of the magnifier-unit by pull of its weight. It is especially valuable in removing foreign bodies from the eye; in removing splinters from fingers, and in rendering treatment to wounds and other injuries. The light is soft, well diffused and its tendency to relax the muscles of the eye is an advantage in its ocular applications. Two models are available, clamp or floor stand base in either white or bronze finish. The head is balanced in the bracket and moves readily in any direction. (These units are known as "Super-Sight" magnifying lights and are the product of the Boyer-Campbell Co., 6540 Antoine St., Detroit 2, Mich.)

Monel Lubrication Fittings

For non-corrosive service in chemical plants

Lubricating fittings which successfully resist rust and corrosion can now be used without danger of sticking or seizing or destruction by corrosion in industrial and chemical process. These lubricating fittings are made with Monel bodies, heat treated "K" metal balls and Iconel Springs. (Alemite Corp-Div.-Stewart-Warner Corp., 1800 Diversey, Chicago.)



B. S. & B. Announces . . .

In addition to the regular line of SAFETY HEAD Rupture Disc devices, B. S. & B. offers these items of special interest.

Combination SAFETY HEAD and Relief Valve

Type L: — Ideal for service where corrosive or gummy materials may interfere with proper operation of a conventional relief valve. SAFETY HEAD diaphragm isolates valve from vessel contents. When rupture disc is burst by over-pressure, and valve functions, a new rupture disc should be installed and valve cleaned as soon as possible.

Valve has unrestricted throat and high lift (1/4th of throat diameter) for large capacity. Valve is not guaranteed to be tight after rupture disc breaks. It is intended to provide temporary shut-off until new rupture disc can be installed.

MATERIALS: Body — cast steel. SAFETY HEAD inlet flange — forged steel (other materials available). Trim — carbon steel or stainless steel. Renewable seat. Spring — chrome steel. Rupture disc — standard SAFETY HEAD rupture disc materials.

CONNECTIONS: Inlet — female NPT, welding hub, or flat with 150 lb. or 300 lb. A. S. A. dimensions. Outlet — 150 lb. or 300 lb. A. S. A. flange. One size larger than inlet.

Maximum spring setting 300 lbs.

SIZES: 1", 1½", 2", 3", 4".

**See These B. S. & B. Products
at Booth 496, New York Chemical Show**

"Midget" SAFETY HEAD

A "throw-away" rupture disc relief device. When the rupture disc breaks, a complete new "Midget" is installed. Assembled, sealed and tested at factory. ½" size only. Rupture disc bursting pressures from 150 to 500 lbs.

Pressure-Vacuum Vent Valve

Model VVH: — Cast Iron body, cast aluminum cover, neoprene or synthetic rubber sealing gasket. Sizes 2" to 24", for ½ oz. vacuum, pressures from 2 oz. to 16 oz.

BLACK, SIVALLS and BRYSON, Inc.

7500 E. 12th Street,

Kansas City 3, Missouri

When inquiring specify CP A3584 . . . see information request blank, pgs. 2-3

JANUARY - FEBRUARY, 1946

Page 55

LOCKS PRESSURE- TIGHT IN 20 SECONDS

J & C AUTOCLAVE
QUICKLY LOCKED
HYDRAULICALLY
OR MANUALLY



The cover of the J & C Autoclave locks pressure-tight in 20 seconds! In hydraulic models, it is necessary to merely trip a lever. In manually-operated models the cover is locked by a few quick turns of a smooth-working wheel. In addition to this extra speed and ease of operation, you get many other engineered advantages that have made J & C Autoclaves unusually successful in impregnating and densifying porous or leaky castings. Through the J & C Autoclave process you can reclaim valuable magnesium, aluminum, and bronze castings to show greater foundry profits. J & C engineers will supervise complete layout and installation or cooperate with your engineering department. Write for full particulars.

JACKSON & CHURCH COMPANY • SAGINAW, MICHIGAN



When inquiring specify CP A3585 — see handy form pages 2-3

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IDEAS

All Aluminum Hand Truck Cast of a Solid Piece of Aluminum

Built in three sizes; rubber tired aluminum wheels with tapered roller bearings



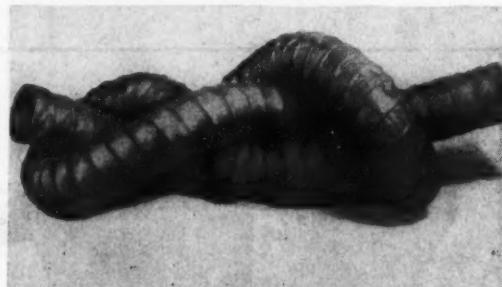
Featherweight Truck

Featherweight aluminum hand trucks are now available for commercial and industrial use. Indicative of their amazing lightness is the fact that they weigh less than a single carton of canned goods such as those that are being loaded in the accompanying photograph. This light weight plus the clean streamlined design makes these new trucks easy to handle and speeds up loading, unloading and moving a variety of cases, cartons and packages. The new unit is built by Northrup Gaines, Inc., a subsidiary of Northrop Aircraft, Inc. Airplane fabricating methods are employed in producing these trucks and they are cast of a solid piece of aluminum. The rubber tired wheels, also cast of aluminum, have tapered Timken roller bearings, which require no lubrication. The trucks built in three sizes are priced at levels that compare with the conventional hand service trucks of wood and steel construction. (Northrup-Gaines, Inc., 1985 East 16th St., Los Angeles 12, Cal.)

*

Spiral Tubing Permits Free Air Flow Through Sharp Bends

For portable or semi-permanent service



Flexible tubing embodying spring steel helix core is made of fire resistant plastic covered duck

Flexible tubing embodying unique construction principles achieves a surprising minimum of resistance to air flow, considerably lighter weight than metal duct or moulded tubing and takes up less space when retracted. It is non-collapsible under plus or minus pressures and retractable to about one eighth of its extended length. Among the most important features is the method of spiral-stitching the spring core within the fabric. The inside surface is free of wire ridges, providing far less resistance to air flow and no obstruction to the passage of solids. Sharp bends can be made with only slight reduction of air flow and without the use of elbows or special fittings. It is suitable for port-

How to get better
LIGHT
... cut office errors

Ask Wakefield. This office had too few outlets-needed a rewiring job, tough because of concrete ceilings. Wakefield GRENADIERS gave the answer—put more light on desk tops and eye-comforting light on walls and ceilings, to cut office errors, reduce eyestrain. Existing outlets met the need because the Grenadier provides its own wiring-way to carry feed wires. Your lighting problem may need different treatment but Wakefield has the answer! Write The F. W. Wakefield Brass Co., Vermilion, Ohio.



When inquiring specify CP A3586 — see handy form pages 2-3

"New Speedaire Fan-Cooled Unit! It's a Cleveland—that's enough for us!"

In the words of the Production Manager:

"We have to be production-minded in this place—we operate around the clock, 300 days a year. Since 1923, we have been using Cleveland Worm Gear Speed Reducers, so we know by experience that they can't take it."

"Now we're hearing about Speedaire—Cleveland's New Fan-Cooled Unit that delivers more horsepower per dollar. We're always interested in bigger returns—so Speedaire, backed by Cleveland's good name, is going on our new equipment from here on."

Shall we send you a copy of Speedaire Catalog 300?



The Cleveland Worm & Gear Company,
3257 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication

IN CANADA: Peacock Brothers Limited



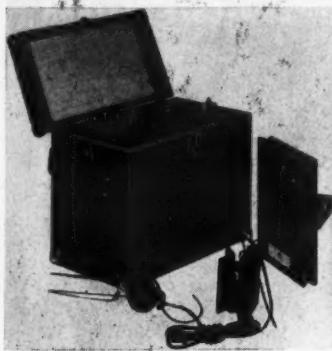
When inquiring specify CP A3587 — see handy form pages 2-3

CHEMICAL PREVIEW

able or semi-permanent ventilation or handling of air, gases or light solids. Wartime service in shipyards and vessels and thoroughly successful trials in industry in such applications as removing dusts and excess product in grinding operations, removing sawdust and wood chips in wood working; grain and flour milling and conveying; handling paper waste trim; removal of welding fumes and in mining other than coal. "Spiratube" as it is known, is made in its standard form of long-fibre duck having a bursting strength of 170 psi. The fabric is processed fire-resistant and covered with tough durable thermoplastic. It can also be made to specifications in a variety of other fabrics for special applications. Spiral stitching is done with a double seam of rot-proof thread. There is no exposed metal inside or out. The steel spring helix core causes it to spring out like a "jack-in-the-box" to its fully extended length and it will stay in this position whether it is working on pressure or suction. "Spiratube" is furnished in standard diameters from 3 inches to 16 inches and in lengths of 10, 15 and 25 feet. Built-in couplings permit quick joining or disconnecting. These couplings are covered; in fact the tubing has no exposed metal inside or out. Thus, the possibility of sparking is eliminated. (Warner Bros. Co., Spiratube Div., Bridgeport, Conn.)

Tester-Locator for Cable & Pipe Combined in Single Unit

Designed for use by industries; public utilities



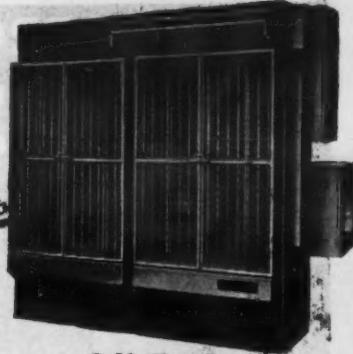
Combination Tester-Locator

A recently announced device features the combination of a cable and pipe locator and tester in a single convenient unit. This new instrument combines with this company's tester for the location of shorts, crosses, grounds and wet spots the facility for indicating location and depth at which cable or pipe may be buried. The device is serviceable in locating path of cable or pipe to or from buildings; finding position of water main in street or alley. It has a lamp circuit for checking all connections after test has been set up. Its use is also indicated for determining whether or not a service pipe is below the frost line in lowering or regrading a thoroughfare. The complete apparatus is furnished with a detector coil and neutral exploring coil. Built-in level in coil enables operator to maintain accuracy. The various uses of this instrument cover the needs of industrial organizations, public utilities and many others. Rugged construction and portability are characteristic features. It is compactly encased. Size 12½" x 7¼" x 11" high; weight 22 pounds, including headphones and neutral exploring coil and fish scale exploring coil. The product is known as the "Stewart Cable Tester & Locator Combined." W. C. DILLON & CO., 5410 West Harrison St., Chicago 44, Ill.

for the first time . . .

The Cleanable *Electro-CELL*

Sectional-type Electronic air filter with removable collector plate assemblies. This feature eliminates need for providing water, oil, compressed air and sewer connections at each installation. Spare collector plate assemblies can be set into place and service continued uninterrupted while dirty plates are being cleaned. Send for Bulletin No. 252.



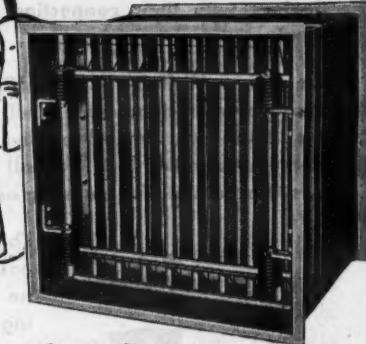
Self-Cleaning *Electro-MATIC*

The completely automatic operation of this Electronic filter answers both the problem of removing the dust and smoke from the air, as well as the secondary problem of disposing of collected material. A continuous curtain of collector plates passes intermittently down the front of the filter and thru a viscous cleaning bath at the bottom. Send for Bulletin No. 250.

a complete line of *Electronic air filters*

Renewable Media *Electro-AIRMAT*

This is the only Electronic dry filter on the market. Uses sheets of "charged" airmat paper which are renewed manually or by a mechanical loader. Combines mechanical filtration with Electronic cleaning providing continuous service even thru a period of power failure should it occur. Send for Bulletin No. 253.



• AAF offers, for the first time, high efficiency air cleaning in three types of Electronic filters to meet any requirement, either commercial or industrial, for super-clean air. For the interesting story behind the development of these filters which are the result of 10 years of research and experimentation send for the helpful booklet shown below.



THE MAGIC OF
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AIR FILTRATION
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AMERICAN AIR FILTER COMPANY, INC.
Incorporated
106 Central Avenue, Louisville 8, Kentucky
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Electronic AIR FILTERS
FOR EVERY COMMERCIAL AND INDUSTRIAL AIR CLEANING PROBLEM

When inquiring specify CP A3588 . . . see information request blank, pgs. 2-3

CHANGE PRODUCTS

in 20 to 30 minutes
without contamination



Two No. 2TH MIKRO-PULVERIZERS in large dyestuff plant. Mills are fed from large mixers on floor above and discharge directly to shipping drums.

Many MIKRO-PULVERIZER users in the color and dyestuff industry tell us it is regular practice to change from one contrasting color to another in 20 to 30 minutes—without the slightest contamination from the material previously handled.

Since the majority of MIKROS are operated without the use of fans, cyclones, separators and such, it is obvious the big problem of cleaning such devices with their connecting pipes, is at once eliminated.

Cleaning a MIKRO-PULVERIZER therefore, consists essentially of cleaning the mill only. Here again, the distinctive design of the MIKRO offers a tremendous advantage. For, all parts are fully and easily accessible for cleaning and inspection.

No. 2 DH
MIKRO PULVERIZER



This accessibility and easy cleaning plays no small part in making MIKROS a great favorite in industry. For full information as to how a MIKRO would fit into your plant operation, write for your copy of Confidential Test Grinding Data Sheet.

PULVERIZING MACHINERY COMPANY
60 CHATHAM ROAD • SUMMIT, N. J.
NOW...2 TYPES TO MEET MOST PULVERIZING NEEDS

MIKRO-PULVERIZER
Reg. U. S. Pat. Off.

When inquiring specify CP A3589 — see handy form pages 2-3

IDEAS

Synthetic Caffeine to be Made in \$1,500,000 St. Louis Plant

Will provide large supply of product for use in soft drinks, medicine and for other requirements

This country will no longer be dependent on foreign-produced natural sources of caffeine when construction of what will be the world's first large-scale plant for the manufacture of synthetic caffeine is completed.

A \$1,500,000 production facility would be built in St. Louis, and that it would utilize an improved process whereby the synthetic material is derived from nitrogen (air) and hydrogen (water). The actual large-scale manufacture of the synthesized product, will mark a new and almost revolutionary application of organic chemistry's development. It promises to be a departure comparable to that by which synthetic vanillin chemically duplicated and ultimately replaced the vanillin derived from clove oil and other natural sources.

The stimulating effect of many beverages — tea, coffee and others peculiar to certain countries — is attributed to caffeine. The caffeine of commerce is likewise used as a stimulant both in medicine and soft drinks. Although scientists have long known how to duplicate the natural product's complicated molecular structure in the laboratory, caffeine until now has been derived almost exclusively from such sources as tea waste and surplus coffee, or indirectly from cocoa cake, a by-product of chocolate manufacture. Severe wartime shortage has emphasized the bitter lesson of depending entirely on imported vege-

I-R STEAM-JET COOLERS

SUPPLY CHILLED WATER FOR POWDER MANUFACTURE

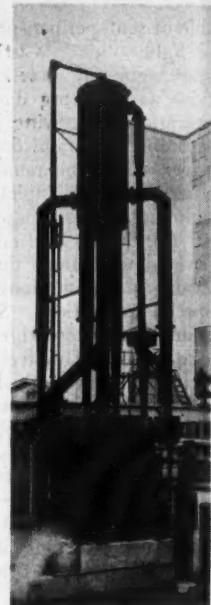
In a large powder factory the reliable and safe supply of chilled water necessary for the manufacture of high explosives is supplied by three steam-jet water-vapor refrigeration units.

The first unit was installed in 1942. Two subsequent units have raised the total plant capacity to 2300 tons of refrigeration.

This is only one of many cooling operations where steam-jet coolers are the logical choice. Their outstanding advantages are:

1. Refrigerant is water—cheap, safe, dependable
2. No moving parts—practically no maintenance
3. High efficiency—maintained at all loads
4. Outdoor installation—no building extension

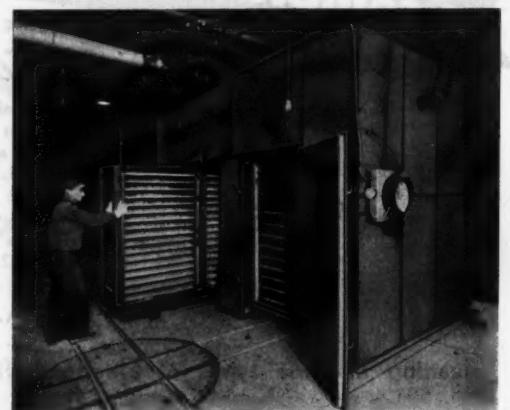
If you have a cooling problem and have available steam at almost any pressure, do not fail to investigate the possibilities of steam-jet coolers. An Ingersoll-Rand engineer will be glad to work with you.



Ingersoll-Rand
11 BROADWAY, NEW YORK 4, N. Y.

When inquiring specify CP A3591 — see handy form pages 2-3

SEPARATE SOLIDS and LIQUIDS by this Simple, Low-Cost Method



"National" Truck Type Tray Dryers

For batch drying of various chemicals in large quantities. Recirculating system carries heated air to each tray in sufficient volume and at proper velocity to assure uniform drying of each tray load, without dusting. Illustration shows battery of dryers especially designed for material having high initial water content and requiring maximum uniformity in drying. May be steam, gas or electric heated.

Chemical Dryers
of All Types
and Sizes



Special Drying
and Heating
Equipment

THE NATIONAL DRYING MACHINERY CO.
2709 N. HANCOCK STREET, PHILADELPHIA 33, PA.

When inquiring specify CP A3590 — see handy form pages 2-3

LINK-BELT Liquid Vibrating Screens REMOVE objectionable solids or RECOVER valuable products from industrial waste water in many chemical and food processing plants. The screen pictured, handles wash water from killing floors in a large packing plant, separating and recovering solids for grease. Pipe clogging and stream pollution are reduced. L-B screens are sturdy and durable—they cut costs and build profits. There is a type for every need. WRITE for Book No. 1977 today.

LINK-BELT COMPANY
2045 W. Hunting Park Ave., Philadelphia 40
Offices in principal cities



LINK-BELT Vibrating SCREENS

When inquiring specify CP A3592 — see handy form pages 2-3

CHEMICAL PREVIEW

IDEAS

table products and the fluctuating availability of such raw materials, said Benzanson. But this is one wartime shortage that peace will not relieve. Fuller utilization of by-products by chocolate makers has virtually dried up the only source from which caffeine has been synthesized, in the face of vastly increased demand today and even greater requirements ahead.

The improved process simulates that of nature, which also uses air and water. (The process, affording greater purity than current U.S.P. standards, was worked out by Dr. Oliver Weinkauff under the supervision of Dr. L. P. Kyrides, Organic Research Director of the Monsanto company.)

In the months ahead a more acute shortage of caffeine is foreseen than when the product was under allocation by the War Production Board. Limited supplies are now necessarily distributed on the basis of pre-war consumption. The company's decision to manufacture synthetic caffeine, will provide insurance against future shortages and eliminate the need for dependency on natural sources. However, production will be continued indefinitely by the present process to the extent that raw materials are available at economic prices. (From report of Monsanto Chemical Co., St. Louis, Mo.—Osborne Benzanson, V.P.)

*

Requirements for Tubular Forms Met by Low Cost Method

Ready-made strainers, filter foundation tubes cut to length from versatile tubing

There are various instances where special tubular forms are wanted on an economical basis where conditions are corrosive, or temperatures high; or the products are to be protected from contamination. "Agaloy" tubing made from Monel, nickel, and Inconel offers a solution to such problems. Ready-made strainers, perforated dyeing tubes, filter foundation tubes, worm feeds and many other tubular forms can be cut to length from this versatile tubing. This "Agaloy" tubing is spirally wound from cold rolled strip metal. With no practical limit on the length of tube which can be fabricated, Monel, nickel, Inconel tube forms are produced in sizes ranging from 0.250 to 4 inch outside diameter. Wall thicknesses as thin as .010 inch or up to 0.065 inch can be made with perforations of any size and spacing. Industrial users can secure detailed information concerning the applications of this tubing to specific requirements. (The tubing is the product of Agaloy Tubing Co., 1-27 Newark Ave., Elizabeth 3, New Jersey.—Data from International Nickel Co.)

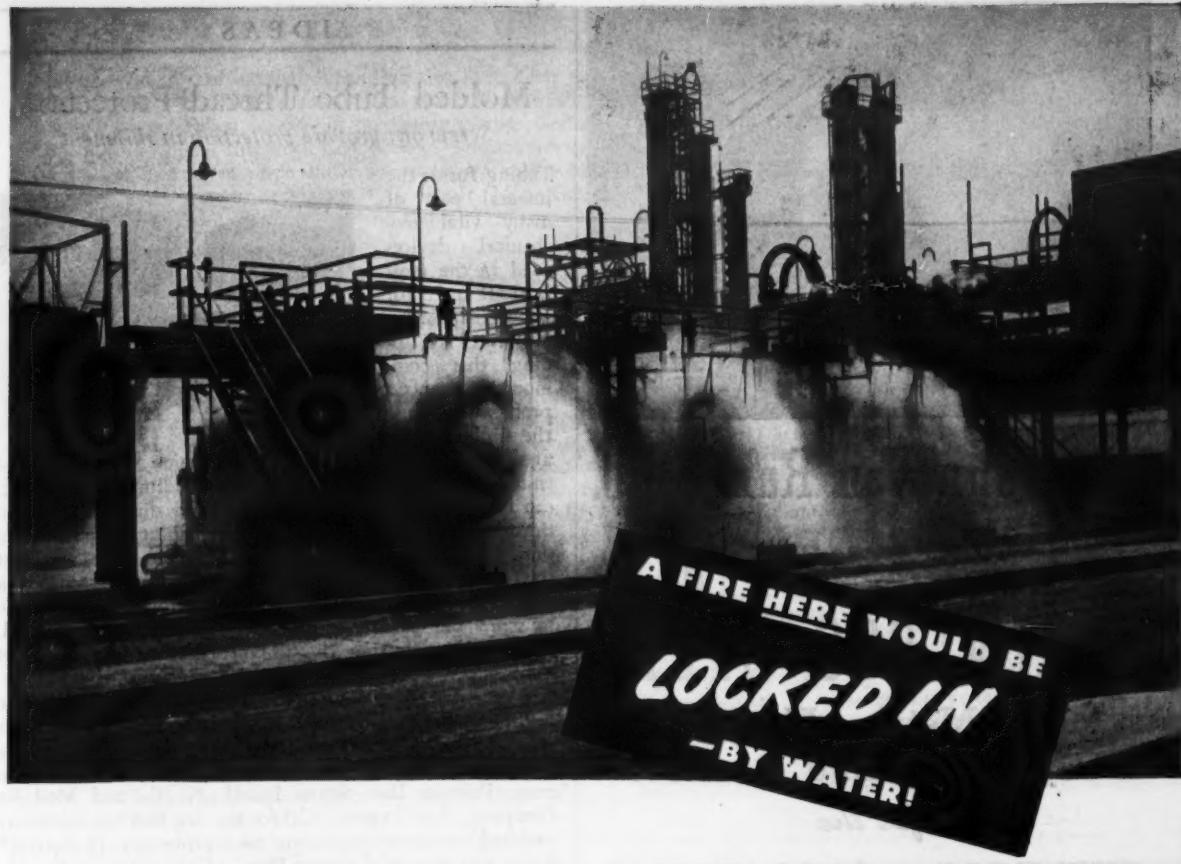
*

Cellulose Acetate Lacquer

Inexpensive formulation gives glossy coat

Those wishing to experiment with a cheap cellulose acetate lacquer formulation with interesting possibilities might consider this one: 16.7% cellulose acetate PL — I, 13.3% Santicizer M — 17, 58% ethyl alcohol (95% strength) and 12% water. In the laboratory when this lacquer at 60 degrees C was applied to glassine paper, it gave a clear glossy coating. Such a lacquer sets to a gel at room temperature. (From the Hercules Chemist, — Hercules Powder Co., Wilmington 99, Del.)

JANUARY - FEBRUARY, 1946



Those tanks contain isobutane. Yet any fire starting in and around those tanks would be put under control almost immediately . . . *using water to do it!*

This plant, like many others where inflammable liquids are handled, puts its reliance on water (hitherto not considered effective on oil fires), because it has learned that water in WaterFOG form is the safest, surest protection.

Should a fire break out, those tanks, as shown above, would instantly be covered by clouds of WaterFOG — tiny water particles much finer than spray, with tremendous heat-absorptive power. Enveloping the area, cooling the blaze, shutting off oxygen, the WaterFOG would quickly confine and control the fire until it burned out or the supply of isobutane was shut off.

FIGHTS MANY TYPES OF FIRES

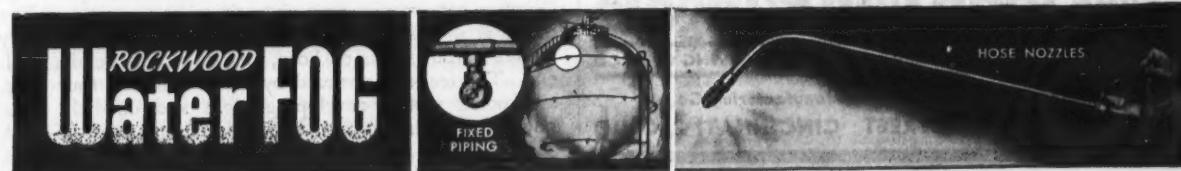
Rockwood-engineered systems of fixed piping are today protecting many types of equipment, processes and structures — transformers, paint shops, quench tanks, engine test cells. Portable WaterFOG equipment — nozzles and applicators to be attached to regular fire hose lines — is also available.

Rockwood WaterFOG is approved by Underwriters' Laboratories and Associated Factory Mutuals. Write for Bulletin 123. Business executives can arrange to have showings of colored movies (16 mm.) of Rockwood WaterFOG in action. Write:

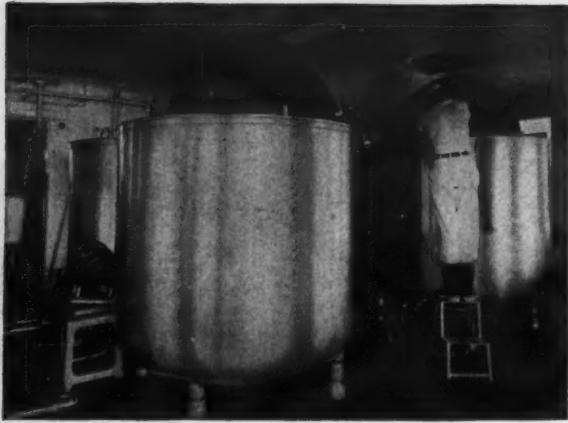
ROCKWOOD SPRINKLER COMPANY
76 Harlow Street, Worcester 5, Mass.

Specialists in Fire Protection Engineering, Equipment and Installation since 1907

Water Engineered by Rockwood Cools. Confines. Smothers Oil Fires



When inquiring specify CP A3593 . . . see information request blank, pgs. 2-3



The John Van Range Co.
Equipment of
STAINLESS STEEL
 Monel Metal Aluminum
 Copper Zinc Steel
 for the
CHEMICAL and PROCESSING
INDUSTRIES
 SYNTHETICS FOODS DRUGS
 DAIRY PRODUCTS

Special Equipment built to specifications for new and unusual scientific and industrial purposes.

98 Years' leadership in the design and manufacture of equipment for the preparation and serving of food.

Send Us Your Inquiries

The John Van Range Co.
 EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD
 Division of The Edwards Manufacturing Co.
 302-342 CULVERT STREET CINCINNATI 2, OHIO

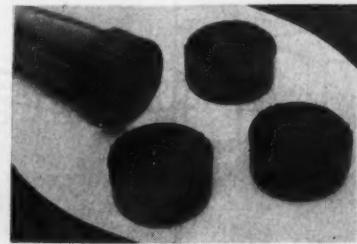
When inquiring specify CP A3594 — see handy form pages 2-3

Page 60

IDEAS

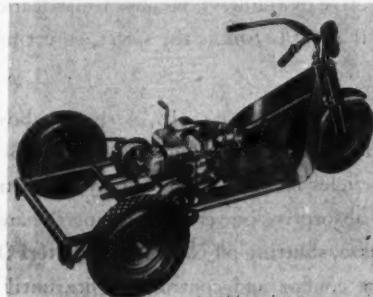
Molded Tube Thread Protectors
Screw on; provide protection in shipment

Tubing forms the integral part of many vital mechanical devices used in the most intricate parts of some machinery. However, shipping this commodity presents a problem because the slightest damage to the thread ends during transit, due to careless handling or bumping, can hold up an entire assembly. Even dirt can clog the threads to such an extent that the tubing is not usable until it is first cleaned. Much valuable time was lost this way. Lumarith* CA (cellulose acetate) supplied a simple solution. Molded thread protectors are now made to screw on, making a solid union with the thread end, completely protecting the shipments as they journey on their way. The low cost of the caps makes them expendable but frequently they are saved for reuse. The high impact strength of the Lumarith protector permits close packing, while its light weight minimizes extra shipping costs. S. S. White Dental Manufacturing Company, Princess Bay, Staten Island, N. Y., and Modglin Company, Los Angeles, California, are two of the many molding companies producing these protectors. (Lumarith* CA is a product of Celanese Plastics Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.)



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*
3-Wheel Truck Has Fluid Drive
For 1/2 ton loads of up to 23 cubic feet



3-wheel, 2-cylinder pick-up truck

permitting all speeds to be governed entirely by a foot throttle. This "Firebaugh" Special handles half-ton pay loads of 23 cu. ft. and can travel 35 miles per hour. Gasoline consumption tests show 60 miles per gallon. The motor is so designed that its standard parts may be easily replaced from stocks of Ford, Chevrolet and Bendix dealers. The truck is powered by a two cylinder, four cycle, air cooled motor, developing eight and one-half horse power. The engine has dual carburation, valves-in-head, Timken front and rear main bearings, cast iron pistons, cast iron cylinders and bronze connecting rods. The truck weighs about 600 pounds, is 92 inches long, 50 inches wide and has a wheel base of 66 inches; turning radius of

GLASS TANKS

*mean
**FEWER
 TANK
 TROUBLES***



Use "Pittsburgh" Glass Tanks to handle tough solutions. These tanks are impervious to most acids and alkalis, even hot chromic acid. They are made in transparent or colored opaque glass—glass which is specially tempered to withstand hard usage and sudden temperature changes.

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 Address.....
 City..... State.....



PITTSBURGH PLATE GLASS COMPANY

When inquiring specify CP A3595 — see handy form pages 2-3

INTERNATIONAL

**for Faster Production
 at Lower cost**



INTERNATIONAL ENGINEERING, INC.
 DAYTON 1, OHIO

When inquiring specify CP A3596 — see handy form pages 2-3

CHEMICAL PREVIEW

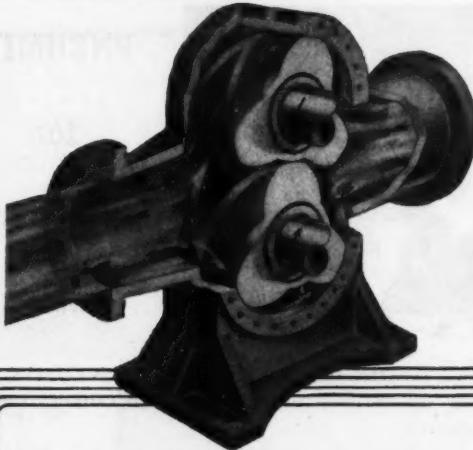
JA



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PATTERSON**
*Your
Headquarters
for.....*

THE PATTERSON FOUNDRY
AND MACHINE CO.
EAST LIVERPOOL, OHIO, U.S.A.

When inquiring specify CP A3597 — see handy form pages 2-3



KINNEY HELIQUAD PUMPS

Handle all liquids with or without lubricating qualities, cold or hot, viscous or non-viscous. Kinney Heliquad Pumps feature smooth, non-pulsating delivery; displacement is positive, with helical rotors of unique design synchronized by hardened steel timing gears. Available plain or steam-jacketed — capacities up to 3000 barrels per hour. Write for Bulletin 18A.

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Chemical Industries

KINNEY MANUFACTURING COMPANY

3573 Washington St., Boston 30, Mass.
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We also manufacture Strainers, Vacuum Pumps, Clutches and Bituminous Distributors.

When inquiring specify CP A3598 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

- Agitators . . .
- Blenders (Wet and Dry) . .
- Centri-Cone Mixers . . .
- Dissolvers . . .
- Digesters . . .
- Kettles . . .
- Kneaders . . .
- Mills (Pebble, Ball and Tube) . .
- Mixers of all Types . . .
- Nitrators . . .
- Reactors . . .
- Sulphonators . . .
- Typhoon Portable Mixers
- Unipower Agitator Drives
- CHEMICAL AND PROCESS EQUIPMENT . . OF ALL KINDS.
- Write for the Facts

I D E A S

14 feet. Brakes are internal expanding and low center of gravity assures constant balance. The truck is especially adapted for interplant service, in processing plants. Some fifty pilot models of this truck have been in constant service during the past three years under strenuous working conditions. ("Firebaugh Special" — Toolcraft Mfg. Co., 2001 Belgrave Ave., Huntington Park, Cal.)

*

Industrial Uses of Beeswax

Electrical, aviation applications important

Along with other familiar materials beeswax has played its part in war production and new and interesting applications have been found in addition to its more standardized uses. Airplane manufacturers have used beeswax in various ways. It was found for example, that wings and other exposed parts slipped through the air with about 15% greater efficiency when polished with beeswax. While other waxes were found that were acceptable substitutes so far as waterproofing was concerned, they did not generally permit as high or as lasting a polish. Much of the canvas used during the war was waterproofed with beeswax, either 100% or a principal ingredient in the waterproofing formula. A large amount of beeswax annually, before and throughout the war years went into liturgical or sacramental candles. In other countries the shortage of beeswax became so acute that the percentage of beeswax permitted in such candles was lowered to one-third and in some cases to one-fifth. In this country there was no authorization of restriction of beeswax content less than 51%. (Summarized from Data — A. I. Root Co., Medina, Ohio.)

**ON YOUR NEXT
"Stainless Job"**

FIGURE THE LOWER
MATERIAL COST OF
INGACLAD®
STAINLESS-CLAD STEEL
See how you save



In designing new products . . . new plant equipment . . . or in modernizing your present plant, it will pay you to consider the generous use of Stainless Steel. Now you can use it freely because Ingaclad Stainless-Clad Steel, at much lower cost, gives all the stainless service you will ever need . . . on the side that is used.

We produce both Ingaclad and Ingersoll Solid Stainless Steel. Our engineers are, therefore, in a position to advise you without prejudice.

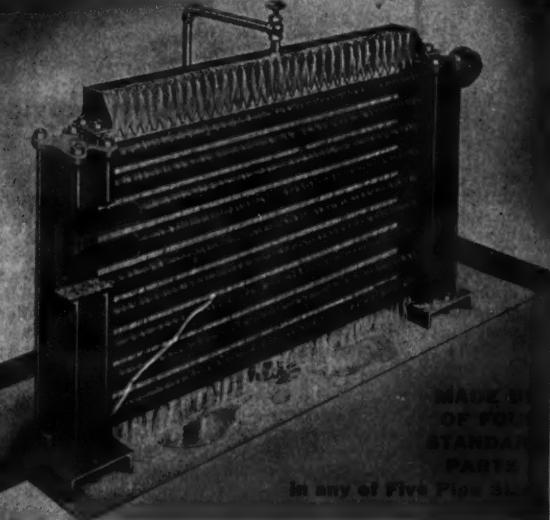
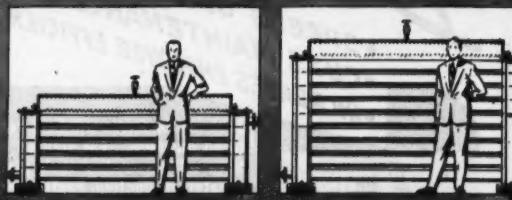
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STEEL DIVISION • BORG-WARNER CORPORATION
310 South Michigan Avenue • Chicago 4, Illinois
Plants: Chicago, Ill.; New Castle, Ind.; Kalamazoo, Mich.



PRODUCTS OF BORG-WARNER

When inquiring specify CP A3599 — see handy form pages 2-3

Announcing THE NEW
**KARBATE SECTIONAL
CASCADE COOLER**



MADE IN
OF FULL
STANDARD
PARTS

HERE'S a cascade cooler that you can order from stock to suit your particular process needs.

Nine-foot-long, single-pipe "Karbate" cooler sections are stacked to form a series flow vertical bank. The compact joint construction makes possible close pipe spacing, ends the need for redistribution baffles. No external supports necessary. Maximum effective external areas: about 120 sq. ft. in all five pipe sizes in the maximum recommended cooler height of six feet.

Gaskets are of synthetic rubber or of asbestos composition, as desired. A standard steel water distributor is mounted atop the steel tie rod assemblies.

Has many uses! Made of "Karbate" impervious graphite material, the Sectional Cascade Cooler is ideal for efficient cooling of almost all acids, caustics, and organic solvents at pressures up

to 75 lbs. p.s.i., and temperatures up to 338° F. With minor changes in applying the cooling water, gases well above this temperature can be handled. Ask for Catalog Section M-8807.

The words "National" and "Karbate" are registered trade-marks of National Carbon Company, Inc.

NATIONAL CARBON COMPANY, INC.
Unit of Union Carbide and Carbon Corporation

UCC
General Offices: 30 East 42nd Street, New York 17, N. Y.
Division Sales Offices: Atlanta, Chicago, Dallas, Kansas City,
New York, Pittsburgh, San Francisco

When inquiring specify CP A3600 . . . see information request blank, pgs. 2-3

Page 61

WHY



1 1/4 Inches



2 Inches



4 Inches

→ the Olivite Pump provides
Low "per Gallon" Cost

THE Olivite Pump is an acid-handling pump and has an excellent record of moving a great variety of chemicals, hot as well as cold, at exceptionally low "per gallon" cost. The pump is so well protected. The contact materials — OLIVITE, a rubber-base composition or OLIVEX, a tough, strong, resin plastic — are particularly durable and firmly bonded to the casing, cover and impeller. The floating stuffing box and the spring-tensioned gland get the best use out of the packing. The split gland facilitates packing renewals. The shaft is enclosed in a protective sleeve of selected material.

Being so well protected and so well constructed, the Olivite Pump is a durable pump and being durable and highly efficient, its "per gallon" cost is low. Sizes range from 1 1/4 to 4 inches. Details are given in Bulletin 308.

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UNITED FILTERS
INC.

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Western Sales Division
Oakland 1, Calif.
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Canada: Sales & Manufacturing Representative
E. Long Limited — Orillia, Canada
Factories: Oakland, Calif.—Hazleton, Pa.—Orillia, Canada—Melbourne, Australia
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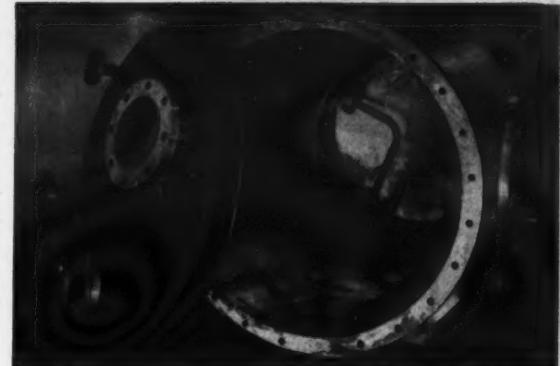
When inquiring specify CP A3601 — see handy form pages 2-3

IDEAS

Electric Heat Developments

Stock tank heater and "Infra-Lectric" unit

The first of a number of new electrical products to be made available for farm use is a stock tank de-icer which incorporates features that make it an exceptionally safe and serviceable accessory. It provides livestock with drinking water during cold winter months by keeping a hole open in the ice forming on the surface of outside tanks. Plugged into any 110-120 volt AC circuit, the de-icer operates at the low power rating of 300 watts even at temperatures far below zero. It will perform its duties in tanks of any size without barriers. The device consists of a hollow, 20 gauge, nickel-plated copper hollow float, a thermostatically-controlled Calrod heating element, and a 15 foot rubber covered, water and weather resistant lead. The float is approximately 2 1/2 inches in depth and 10 3/4 inches in diameter, including the heating element which encircles it. The thermostat, sealed within the float, automatically regulates the current and cuts off power when not needed. The lead is connected to the thermostat and firmly anchored to the bottom of the float through a copper tube which is sealed to the bottom of the disc. The top of the disc never gets too warm and the stock merely nose it down to drink. (General Electric, Schenectady, N. Y.) Another innovation is also in the heating field but designed specifically for human comfort. It is an "Infra-Lectric" heater. The decorative fused glass heating elements are embodied in a polished aluminum frame, overall dimen-



STAINLESS STEEL TANK

**Stainless Steel Tank made from Type 347,
polished inside with polished coils.**

**25 years of fabrication with all grades of
alloys is available for special work.**

Write for Bulletin CP 30

ALLOY MANUFACTURING CO.

30th Street

Pittsburgh, Pa.

When inquiring specify CP A3603 — see handy form pages 3-3

PLAN NOW FOR POST WAR COMPETITION!

PARSONS OVAL BAG

Dust Arrestors

- SPEEDS UP PRODUCTION
- CUTS MAINTENANCE COSTS
- INCREASES EMPLOYEE EFFICIENCY

Post war business will be a "competition business". Far sighted executives will streamline their plant for greater production. Factory dirt and dust slow up production — deteriorate machinery — cause absenteeism. Parsons Oval Bag Dust Arrestors will solve the problem . . . and in most cases actually pay for themselves in increased production and the reclamation of valuable dust. Our engineers will check your dust problem without obligation.



CREATIVE ENGINEERS
MANUFACTURERS

ENGINEERING CORP.
3845 E. 90th St., CLEVELAND 4, OHIO

WRITE FOR BULLETIN... "MASTERY OF THE AIR"

When inquiring specify CP A3602 — see handy form pages 2-3



PNEUMIX

for

Efficient

Mixing

If your material varies in viscosity — PNEUMIX Air-Motor Agitator has throttle control; it cannot overheat or burn out.

If it is inflammable — PNEUMIX Air-Motor does not spark; it is completely explosion-proof.

If it is corrosive — PNEUMIX Agitator Air-Motor is completely enclosed, splash-proof and fume-resistant.

PNEUMIX is portable, light-weight, and designed for long operation with low maintenance cost. Write for details today.

ECLIPSE AIR BRUSH COMPANY
393 Park Avenue Newark 7, N. J.

ECLIPSE



When inquiring specify CP A3604 — see handy form pages 2-3

CHEMICAL PREVIEW

GLASS

Makes an Excellent Filter Medium for Strongly Acid and Hot Solutions

To the process plant operator, chemical glass needs no introduction as a material highly resistant to most chemicals, hot or cold. Chemical glass, spun and woven into a filter medium, offers the same acid and temperature resistance.

F-M Glass Filter Medium is also durable in a mechanical way, being carefully spun into strong threads and woven into tough cloth. We can offer several different weaves, ranging from coarse to fine, from heavy to medium weight. And we can offer trained technical advice, if desired, and laboratory tests for determining the best grade of Glass Medium for your particular problem.

In writing please give as complete a picture as possible of your problem.

FILTER MEDIA CORP.

Irvington-on-Hudson, N. Y.

Chicago

Salt Lake City

1-FM-2

When inquiring specify CP A3605 — see handy form pages 2-3

IF YOU HAVE A STEAM DISTRIBUTION PROBLEM

—this book can help you solve it!

RIC-WIL
CONDUIT SYSTEMS
FOR UNDERGROUND
STEAM, OIL OR HOT WATER LINES

Write for your copy today

THE RIC-WIL COMPANY
Sales Office: Cleveland, Ohio
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The Ric-wil Catalog No. 44 is more than a catalog. Besides product descriptions it contains informative data of value to any engineer, architect, or contractor concerned with the insulation and protection of piping—underground or overhead. Capacity tables, trench dimensions and general specifications are included for Ric-wil Prefabricated Units, Tile and Cast Iron Conduit Systems.

RIC-WIL INSULATED PIPE CONDUIT SYSTEMS
THE RIC-WIL COMPANY - CLEVELAND, OHIO

When inquiring specify CP A3606 — see handy form pages 2-3

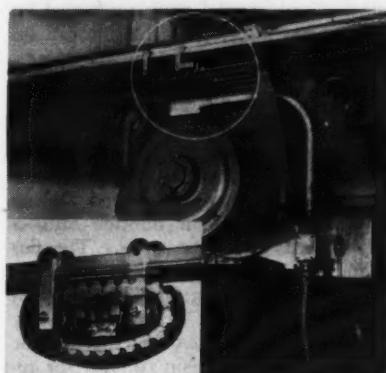
JANUARY - FEBRUARY, 1946

IDEAS

sions of which are 20 x 20 $\frac{1}{4}$ x 4 inches. It weighs only 18 pounds and is easily moved from place to place as required. This "Infra-Lectric" heating element is an aluminum alloy band fused into the back of tempered glass plate. (Radiant Heater Co., New York).

Shockproof Trolley Conductors

System utilizes perforated rubber conductor covering and unique chain type collector



Typical installation of insulated trolley conductor — insert shows collector unit chain

ery type of overhead mobile equipment, monorails, portable tools, etc. In place of a dangerous exposed trolley wire this new system utilizes a copper conductor in standard ten foot lengths encased in a slotted rubber rack supported by a rigid backing. These perforations on the underside of the insulation provide for the necessary contact and the travelling collector which replaces the usual trolley wheel. For suspension special wedge clamp hanger mounting brackets on four foot centers are utilized. The "Troy" or collector makes contact with the conductor which embodies an endless chain having protruding teeth which penetrate the perforations to effect power pick-up. The chain runs over two pulleys travelling along the wire in much the same manner that a tractor tread travels on the ground. Six of the teeth on the chain are in constant contact with the conductor or wire, eliminating sparking or arcing. With this system installed on main power feed lines as well as on each bridge or transverse conductor system shut downs while performing service operations are avoided. Trolley stretch or sag and dragging are also avoided and automatic wiping action polishes conductor. The system operates on single or multiple phase AC or DC currents up to 600 volt capacities. (Illustrated bulletin on the "Benbow TracTroy" conductor system gives complete details, shows pictures and diagrams of installations: single and dual mountings for tram and Monorails and various multiple phase installations. Benbow Mfg. Co. (Electric TracTroy Div.), Hobart Bldg., San Francisco 4, Cal.)

LCL Containers Made of Aircraft Aluminum

Equal to half a box car; easily transported

New LCL (less than car load) container made of strong aircraft aluminum offer lighter per pound capacity. They are equal to half a box car and are easily transported between loading docks and flat cars. Mounted on a specially designed trailer frame they are easily shifted on and off the framework by built-in hydraulic jacks and ball bearing rollers. (Reynolds Metal Co., Louisville, Ky.).

2-PIECE ACID DRUMS



for added years of trouble-free service

The two-piece construction of Hackney Acid Drums minimizes the possibility of chime failure and eliminates chime crevices. The reinforced, separate chime protectors — together with the I-bar hoops — substantially increase resistance to rough handling and abuse. Corrosion and bung failure are avoided by the two-pass weld and careful attachment of heavy forged spuds. Heat-treating after complete fabrication further improves the durability and resistance to corrosion of Hackney Acid Drums.

Write today for full details.



PRESSED STEEL TANK COMPANY
Manufacturers of Hackney Products

1387 Vanderbilt Concourse Bldg., N. Y. 17 1463 S. 66th St., Milwaukee 14
208 S. LaSalle St., Room 2085, Chicago 4 562 Roosevelt Blvd., Los Angeles 14
Containers for Gases, Liquids and Solids

When inquiring specify CP A3607 — see handy form pages 2-3



Burcott Mills regularly supplies cotton ducks and filter fabrics for the following industries: Chemical, Oil & Wax, Dyestuff, Cement, Cane & Beet Sugar, Food-Processing, Ceramic Processing, Paint, Mining, Quarry and Smelting.

Just a few of the items for quick delivery from Chicago stock:

36" No. 6 Duck 26" No. 8 Duck
36" No. 8 Duck 40" No. 8 Duck
37" No. 12 Duck
26" 18.25 oz. Filter Twill
38" 17.5 oz. Filter Twill
26" 15 oz. Chain Cloth
34" 19 oz. Chain Cloth

Subject to prior sale.
WRITE, WIRE, OR PHONE.

BURCOTT MILLS

622 W. Fulton Street

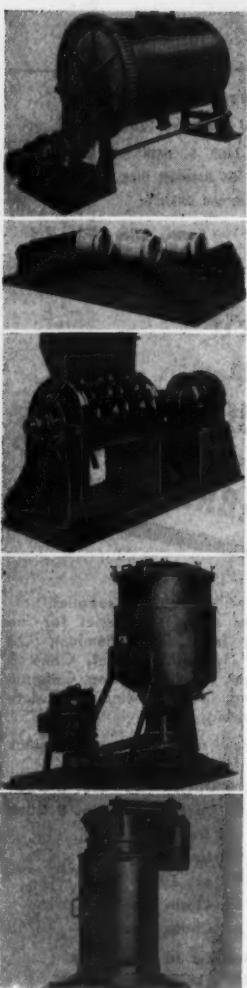
Chicago 6, Illinois

When inquiring specify CP A3608 — see handy form pages 2-3



THEY'RE WORTH ASKING FOR

If You Want to Improve



PULVERIZING WET OR DRY GRINDING

Abbe Ball or Pebble Mills, batch type or continuous tube mill type, meet your every requirement in reducing materials to required mesh in any quantity in small or large scale production. Abbe Jar Mills or Jar Rolling Machines handle multiple small batches of same or different materials. They can also be used for compounding and dispersing.

CUTTING • SHREDDING GRANULATING

Abbe Rotary Cutters reduce materials to as low as .01" particle size. For chemicals, plastics, bark, cork, roots, paper, gums, spices, etc. High speed granulating with minimum of fines, quick screening and easy cleaning.

MIXING • DISPERSING EMULSIFYING

Abbe-Lenart Mixers provide rapid, intensive dispersion of solids in liquids, producing more uniform material in minimum time. Built of any metal for operation at normal, high or low temperatures, pressure or vacuum.

SIFTING

Abbe-Blutergess Turbine Sifter for any dry material, any mesh, produces clean separation from 2 to 10 times faster than shaking or vibrating screens. Quiet, dust-proof, power and space saving.

ABBE ENGINEERING CO.
46 CHURCH ST. • NEW YORK 7, N. Y.

When inquiring specify CP A3609 — see handy form pages 2-3

Page 64

IDEAS

Removal of Excessive Fluorine in Drinking Water

Valuable in keeping concentrations within specified narrow limits

Excess fluorine in drinking water, now recognized as the cause of "mottled teeth" (chalky white, brown-spotted enamel) can be effectively removed by the use of Amberlite ion exchange resins. Experimental work confirmed by independent organizations has shown that fluorine can be rapidly and efficiently extracted by passing the water over a bed of Amberlite IR-4-B which has been specially treated with a solution of an aluminum salt — generally aluminum sulphate. The method is ideally suited to water supplies. The exchanger is not depleted in the process and can be used repeatedly by a simple regeneration process employing an alkaline solution which removes the accumulated fluorine ions. Water containing the fluorine or fluoride salts is passed through a column containing the resin. The fluorine ion is retained and the 'conditioned' water passes on through the column. When the exchanger bed is saturated with fluorine ions, regeneration becomes necessary — a reverse chemical reaction which removes the fluorine ion from the resin and prepares the resin column for repeated use.

In the proper concentration, fluorine is responsible for the excellent condition of the teeth of inhabitants in certain localities in our country. On the other hand fluorine concentrations outside of narrow limits established by Na-

A New RUST-RESISTING UNIT
for FLUORESCENT LIGHTING in
DAMP and DUSTY Locations

BENJAMIN "TX-40"

The one-piece all-porcelain-enamel unit



Rust and other problems due to humidity and dust meet their master in the new Benjamin "TX-40". Now, even the most humid locations can be economically provided with fluorescent illumination through lighting units especially designed and constructed for such purposes. The one-piece all-porcelain-enamel construction of the "TX-40" provides durability and long life operation not possible with ordinary units. For data on this and other Benjamin Fluorescent Equipment write Benjamin Electric Mfg. Co., Des Plaines, Illinois, Dept. R1

When inquiring specify CP A3611 — see handy form pages 2-3

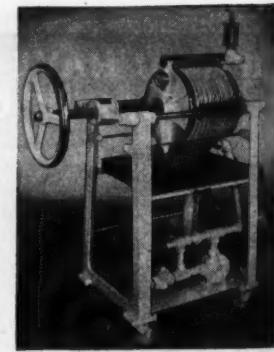
THE ERTEL

MODEL EW

Asbestos Disk

Filter

CAPACITY FROM
5 TO 20 GPM



This Ertel filter, one of the many different models available for particular applications, will accommodate from six to fifty 12 1/4 inch Ertel Asbestos Filter Disks. Standard equipment includes silent operation pump and motor. Has manual by-pass pressure control. Can be used as portable unit or part of permanent installation. Ertel engineers will recommend the correct type and size for any particular requirement.

CATALOG { The fully illustrated Ertel Catalog-12 describes the complete line of Ertel Liquid Handling Equipment. Send for a copy today; no obligation of course.

ERTEL

LIQUID HANDLING EQUIPMENT ENGINEERS

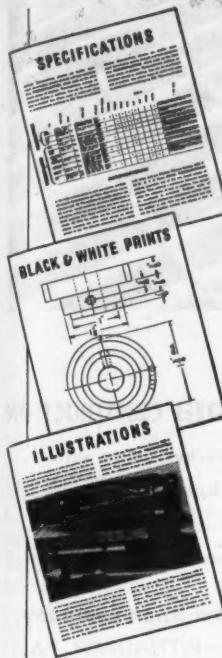
Screw Conveyor Corporation
609 HOFFMAN ST. HAMMOND, IND.
ENGINEERS MANUFACTURERS
PRODUCTS

When inquiring specify CP A3610 — see handy form pages 2-3

When inquiring specify CP A3612 — see handy form pages 2-3

CHEMICAL PREVIEW

Duplicate Almost Anything With This New Bruning Photographic Printer



With this Bruning Model 2 BW and Copyflex Continuous Printer there is practically no limit to the kind of materials you can duplicate! Quickly makes the copies of anything typed, printed, illustrated or drawn — original material with copy on both sides can be reproduced from one or both sides. Copyflex photographic prints are developed with three trays and a simple drier (readily available) — BW Prints are developed with the Model 153-M Developing Machine combined in convenient stand with the printing unit. Moderate in price. For complete information, write Charles Bruning Company, Inc., 4706-8 Montrose Avenue, Chicago, Illinois.



BRUNING SINCE 1897

When inquiring specify CP A3613 — see handy form pages 2-3

**HENDRICK
MITCO ARMORGRIDS**



Built to Take the Toughest Loads!

Reinforced with Hendrick Mitco Armorgrids, no floor or platform has ever required replacement. Imbedded in concrete, cement, asphalt, composition, mastic or other plastic materials, Mitco Armorgrids are flush with floor, and so absorb the brunt of shocks, grinding loads and continuous hard usage. Completely fabricated panels are easy and most economical to install. No assembly work required! Write for full data on Hendrick Mitco Products.

HENDRICK MANUFACTURING COMPANY

Carbondale, Penna.

30 CHURCH STREET, NEW YORK CITY

Sales Offices in Principal Cities

Also manufacturers of Perforated Metal Screens, Perforated Metal Grilles, Light and Heavy Steel Plate Construction

When inquiring specify CP A3614 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

IDEAS

tional Health Associations are definitely deleterious to health and result in mottled teeth. Although it has been known for some time that fluorine is removed by bone, chemical methods are relatively recent developments. The problem posed involved finding a substance which would not leave in the water any element not already present; and which would not impair the potability of the water by increasing any ordinary constituent to an undesirable concentration.

There were three possible approaches: precipitation of fluorides — unsatisfactory because of the high solubility of the fluorides; desalting, which has proved uneconomical so far; and the selective adsorption on the surface of a solid. The latter proved most promising. Although a number of materials — titanium oxide, zinc oxide, copper hydroxide, copper sulfide, etc. — answered most of the necessary qualifications, their principal disadvantages proved to be ready disintegration, inability to be regenerated and low capacity. The use of resinous ion exchangers and their selective removal of the fluorides became the logical answer for commercial purposes.

RESINOUS PRODUCTS & CHEMICAL CO., 222 West Washington, Philadelphia, Pa.

Revolutionary Slide Rule

Places decimal point at end of long computations

The recently announced slide rule which places the decimal point at the end of long and intricate computations, in fact up to 19 places is now being manufactured of light-weight Dowmetal. This permits superior accuracy as Dowmetal is not affected by climatic conditions of heat, cold and moisture. The Dowmetal core is surfaced with a flat white plastic impervious to water or chemicals and resistant to abrasion from regular use. This rule known as the "Deci.Point" has a highly simplified arrangement of scales. Computation is facilitated so that persons of limited mathematical knowledge can evaluate and point off problems containing cube root, square root, logarithmic and trigonometric factors. Advantages include: Same setting of hair line for results also gives readings for cube and square roots and logarithm of result; gives 30 inch scale accuracy for cube root; gives 20 inch scale accuracy for square root. The rule is 12 $\frac{1}{8}$ inches long and two inches wide. A manual is included with the rule and covers all phases of slide rule operation as well as decimal point location. (Pickett & Eckel, 53 W. Jackson Blvd., Chicago 4, Ill.)

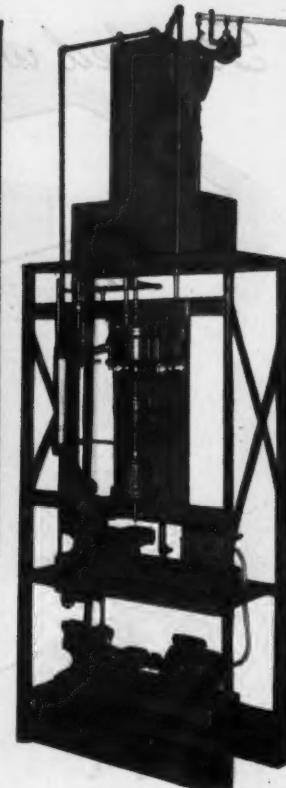
New Rat Poison Demonstrates its Effectiveness in Experiments

Causes dropsy of the lungs; drowns rodents in their own fluid

A new rat poison that has been experimented with successfully is described in the December issue of the Journal of the American Medical Association (by Curt P. Richter, Ph.D., Johns Hopkins Hospital). This new poison — "ANTU" — causes dropsy of the lungs so that the rodent is drowned in its own fluid. In a complete campaign to decimate large numbers of rats the following procedure is suggested. (1) Do not undertake a program in an area less than that of a whole city square. (2) Be certain that coverage of the poison is thoroughly complete. (3) Close cooperation of all persons within the area where this campaign is under way. The poison is not harmful to human beings except in very large quantities.

Pumping Chemicals is NO PROBLEM with the R & M MOYNO

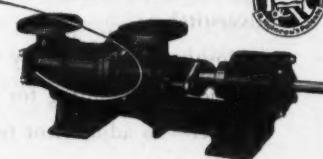
Power Plant Specialty Co. uses two of these simple, durable pumps on the Segeler Chemical Feeder



Continuous proportioning in chemically treating water, or for any other purpose, requires that flow be both smooth and uniform. Pumps must stand up under chemical reaction, be thoroughly reliable, and be easily restored when worn.

MOYNO PUMPS WORK WONDERS

That's why Power Plant Specialty Company, Chicago, selected R & M Moyno pumps for chemical circulation and for transferring the mixture to reaction or precipitation tanks. The Moyno delivers in uniform flow at positive pressure. All parts which fluid contacts may be made with high resistance to chemical attack.



New Book Yours Free!

Get all the facts on this amazing pump. It has no pistons or valves, no high internal velocities, no sealing with any part of the housing. Moynos handle virtually everything from free-flowing liquids to non-pourable pastes; pass particles; withstand abrasion. Write today!

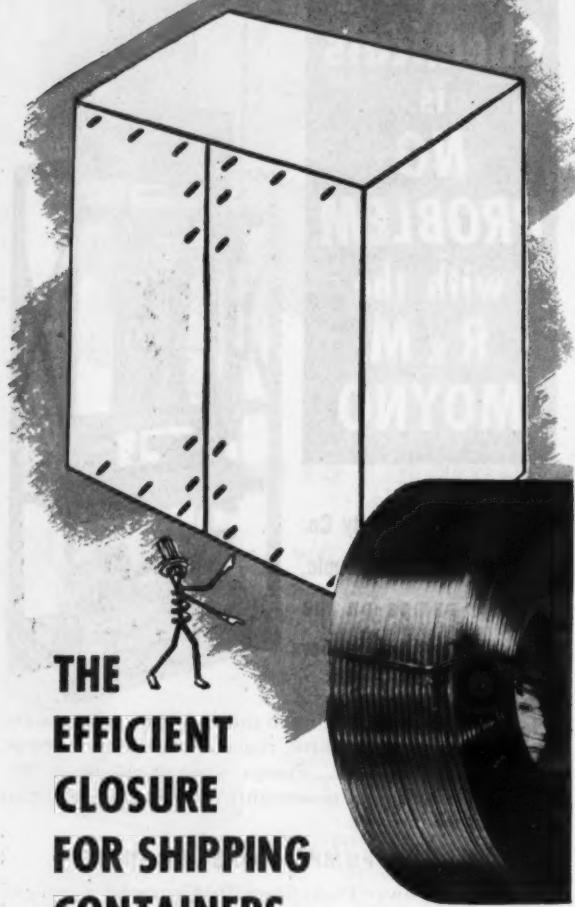
ROBBINS & MYERS • INC.

MOYNO PUMP DIVISION • SPRINGFIELD, OHIO

HOISTS & CRANES • MACHINE DRIVES • MOTORS • FANS • FOUNDED 1878

When inquiring specify CP A3615 — see handy form pages 2-3

Stitched with Steel



**THE
EFFICIENT
CLOSURE
FOR SHIPPING
CONTAINERS**

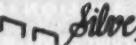
Acme Silverstitch

Advantages of closing fiber shipping containers with Acme Silverstitch Stapling Wire and the Silverstitcher:

- closures not affected by weather
- no lost time waiting for adhesives to set
- faster—no adjustment for size of box
- dependable, stronger seal than other methods
- stitches do not obscure printed message or design on the box
- cuts cost in materials and space
- easy to operate and maintain the Silverstitcher machine

ACME STEEL COMPANY

NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 13

SilverStitch  *SilverStitchers* 

When inquiring specify CP A3616 — see handy form pages 2-3

Page 66

IDEAS

Peel Vegetables and Fruits for Canning by Exploding Skins

Treated in retort with use of steam pressure

Peeling of certain fruits and vegetables has been successfully performed in research laboratory by exploding the skins from the product. This is accomplished in an experimental retort equipped with temperature and air pressure devices which regulate the temperature and pressure to desired levels. Lima beans, peppers, potatoes, sweet potatoes, peaches and apples are subjected as quickly as possible to a temperature of from 240-250 degrees F and a pressure of 10 to 15 pounds and subsequent creation of a vacuum of from 25 to 27 inches by shutting off the steam and rapidly forcing cold water into the retort. Skins are quickly removed (pods in the case of lima beans) and with comparatively little waste. No desirable results were obtained by using air pressure in addition to steam pressure, i.e., by maintaining for example, a temperature of 240 degrees F at 15 pounds total air and steam pressure. In fact, meager evidence indicates that best results are secured if all the pressure is steam pressure.

The relatively small losses resulting from peeling by the explosion method make it of interest to processors, particularly those engaged in dehydration. This method was developed at Ohio State University and patent rights have been assigned to the Research Foundation (Dr. A. Ray Olpin, Director). This summary based on report of H. D. Brown and C. Murnane — Ohio State University, Columbus, O.



Parts of a diffuser assembly

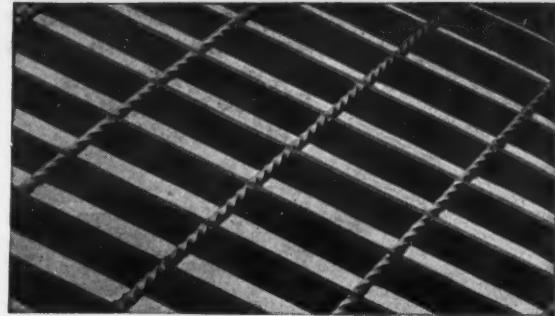
Acid-Proof Equipment Made To Order

Above are typical examples of Knight Corrosion-Proof Stoneware especially designed to customers' specifications. All Knight-Ware is one-piece construction without seams or joints. It provides corrosion-proof equipment for handling acids, alkalies, gases and chemicals. Send us details on your corrosion problem.

MAURICE A. KNIGHT, 401 Kelly Ave., Akron 9, Ohio

When inquiring specify CP A3617 — see handy form pages 2-3

IDEAS



ONE PIECE

...ELECTROFORGED STEEL CONSTRUCTION

- ★ Easy to maintain—paint reaches entire surface.
- ★ Open to maximum area of light and air.
- ★ Self-cleaning—no sharp corners to clog with dirt.
- ★ Economical and easy to install.

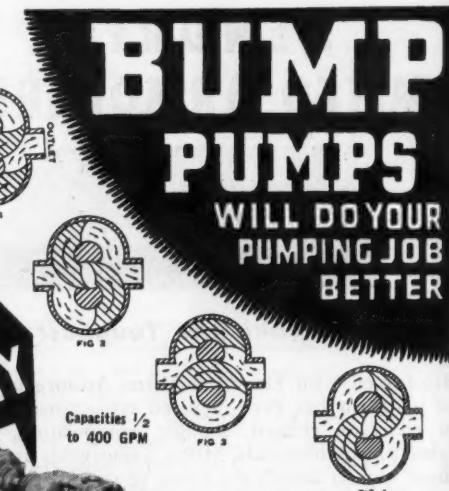
BLAW-KNOX DIVISION of Blaw-Knox Company

2076 FARMERS BANK BLDG. • PITTSBURGH, PA.

NEW YORK CHICAGO PHILADELPHIA BIRMINGHAM WASHINGTON

BLAW-KNOX GRATING

When inquiring specify CP A3618 — see handy form pages 2-3



Send for new complete catalog.

Capacities 1/2 to 400 GPM

THE illustrated principle of operation shows why Bump Industrial Pumps have low maintenance cost. There are no grease cups, and no internal threads — only 2 moving parts, which make them easy to clean and easy to maintain. As one company that has used a large number of Bump Pumps for years states: "They do a better job at a lower total cost to us than any other pump now offered on the market."

Bump Industrial Pumps are positive displacement at any speed or pressure . . . self-priming under high vacuums or against head pressures.



The BUMP PUMP CO.
LA CROSSE • WISCONSIN

When inquiring specify CP A3619 — see handy form pages 2-3

CHEMICAL PREVIEW

IDEAS

Electronic Sterilization of Eggs

Ten seconds of exposure gives effective results
An electronic egg sterilization method under development at the University of California offers interesting possibilities. It is said that ten seconds exposure by this method will kill all interior germs and unwanted egg growth and in addition all bacteria growth on the shell, thus giving the egg better keeping qualities. (As reported in Ohmite News — Ohmite Mfg. Co., Chicago.) *

Faster, More Accurate Method for Measurement of Particle Size

Operation requires only about two hours; research on white pigments for paints typical of many measurement applications

The size of particles as small as one millionth of an inch in diameter — too minute to be seen with an optical microscope — can now be measured rapidly, and with a high degree of accuracy, by means of a new method worked out in the laboratories of the Chemical Department at the Experimental Station of E. I. du Pont de Nemours & Co., Wilmington, Delaware. (This new and improved technique was recently discussed in a paper by E. D. Bailey, research physicist at the du Pont Experimental Station, before the Particle Size Symposium, of the Division of Industrial and Engineering Chemistry, American Chemical Society at the Brooklyn Polytechnic Institute). The procedure consists in passing light of different colors through a suspension of the powder in a liquid, and then measuring the amount of light of each color which emerges. Suspensions containing particles of different sizes transmit different colors to different degrees. From the data thus obtained, the average size of the suspended particles is calculated, and also a curve is obtained showing the relative amounts of each particle present. One of the advantages of this new method over previously used techniques is that of speed, the whole operation requiring only about two hours. In addition, the technique can be carried out by trained non-technical personnel, with relatively simple equipment. Measurement of particle size is of importance in a wide variety of technical investigations. For example, it is of primary interest in connection with research on white pigments for paints and enamels, where quality of the finished product is to a considerable degree dependent upon the size and uniformity of the pigment particles. *

Machine Cooks and Vends Hot Dogs

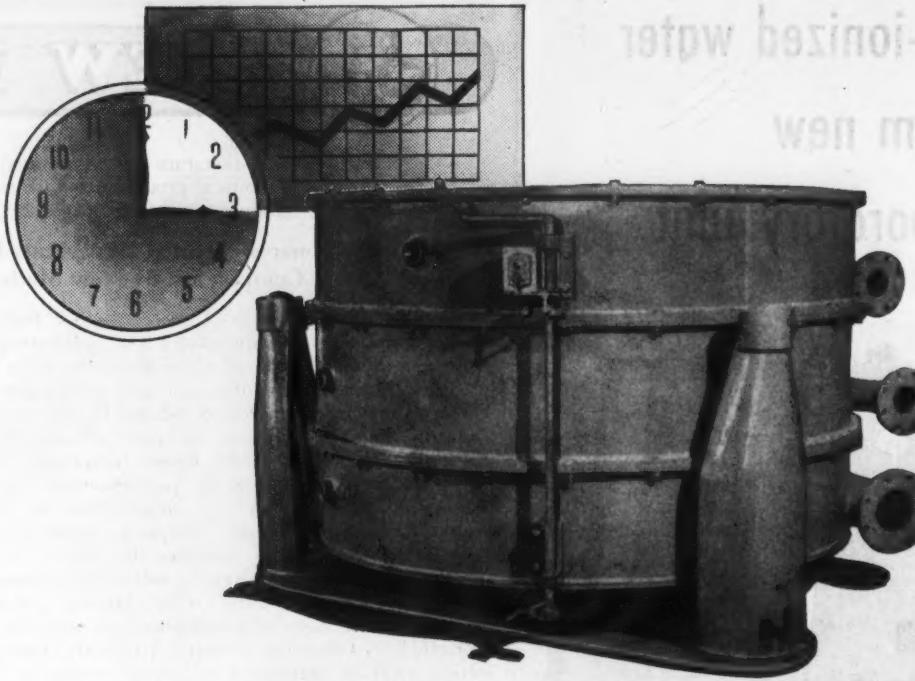
Streamlined "juke box" design

An electric hot dog vending machine has recently been announced by General Electric engineers. This new "streamlined" unit delivers a freshly broiled hot dog with a crisp roll upon depositing the necessary coin. Appropriately enough the machine resembles those handsome "juke" boxes. No mustard is included with the hot dog however, that is not yet. *

Welding Side Seams of Tin Cans By Machine

Developed by Germans during war

German canning was behind that of the United States, England and France in the middle thirties, but made rapid progress after 1937 when an extensive research program was instituted. For instance, a process was developed for welding the side seams of tin cans by machine.



CHANGES THAT SAVED TIME... INCREASED PRODUCTION

SEDIMENTATION: *AT&M Centrifugal Ends Contamination.* Centrifuging uses simple physical laws to speed up the process of separating materials, and the space requirements for the equipment are much smaller than alternative methods. AT&M experience of almost a century helps get the most from centrifugals.

Daily production of a metal precipitated in an acid liquor depended upon the rate of precipitation in a bulky settling tank. Acid was spilled on the floor and the end product often contaminated. An AT&M Centrifugal, operating in less space, decanted the liquor over the top of the basket, stepped up production and kept product and floors clean.

DEHYDRATION: *AT&M Centrifugal Doubles Production.* Progress in the development of higher speeds for centrifugals with greater safety for materials and workers has kept AT&M engineering alert for better ways to do more in less space, faster. Flexibility in the speeds of AT&M Centrifugals permit using the right speed for each job.

One manufacturer was using centrifugals of limited speed range for drying crystals. Higher speeds would do the work faster. AT&M furnished properly designed, more compact centrifugals, capable of much higher speeds. Faster drying of crystals gives him twice the production per hour and saves \$7,500 per year on this one operation.

Consider Centrifuging for extraction...filtration...dehydration...precipitation...impregnation...coating. See AT&M's 4-page catalog in CHEMICAL ENGINEERING CATALOG.

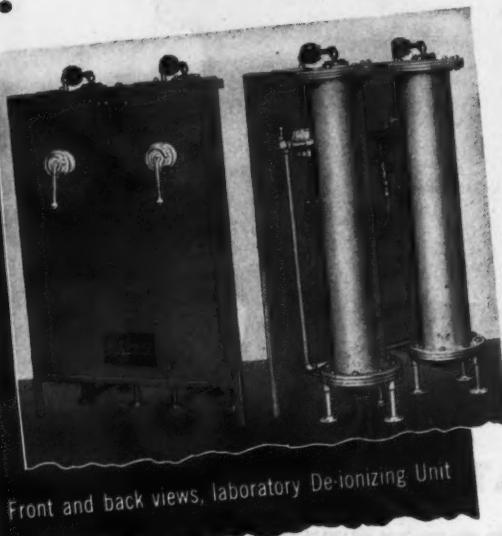
Consider AT&M for capable engineering service — no charge for study and recommendation. Centrifugal sand baskets in all machinable metals and coatings. Strict confidence preserved. AMERICAN TOOL & MACHINE COMPANY, 1425 Hyde Park Ave., Boston 36, Mass., 30D Church Street, New York 7, N.Y.

SAVE TIME, SPACE AND COSTS WITH

**A.T. and M.
CENTRIFUGING**

When inquiring specify CP A3620 . . . see information request blank, pgs. 2-3

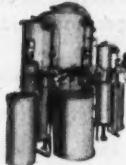
De-ionized water from new laboratory unit



Front and back views, laboratory De-ionizing Unit

- You will get 60 gph of De-ionized water, comparable to distilled water, from the above compact laboratory unit—at 1% to 10% of the cost of distilled water! (A similar ILLCO-WAY laboratory unit provides 100 gph.) Leading industrial, chemical and pharmaceutical plants use ILLCO-WAY De-ionizing equipment for obtaining this high-purity water. Purity meter shows quality of water at all times. No fuel, no cooling water required, no periodic dismantling for cleaning. Write for full details and literature today!

ILLINOIS WATER TREATMENT COMPANY
849-1 Cedar Street, Rockford, Illinois
7310-G1 Empire State Bldg., New York City



PLANT INSTALLATION
Flow rates range from 12 gph (smallest laboratory unit) to plant units of 500,000 gph. Typical plant installation (500 gph) is illustrated at the left.

Water Treatment Engineering



When inquiring specify CP A3621 — see handy form pages 2-3

Page 68



NEW LITERATURE *

The following literature has been issued recently by manufacturers of the products discussed and is available to chemical process manufacturing executives on request. Address requests to the publishers by using handy request form, pages 2-3, or write to the manufacturers direct.

Process Fractionates Distilled Fatty Acids Into Solid, Liquid Components by New Method

Booklet describes the Emersol process, which fractionates distilled fatty acids into their solid and liquid components by a new chemical engineering method, reaches a degree of purity which had heretofore not been readily obtainable. The process is being offered to industry by the Blaw-Knox Company, Pittsburgh, Pa., the exclusive sales agent. Under the terms of agreement with Emery Industries, who perfected the process, Blaw-Knox is empowered to offer a license, plus the design and construction of complete plants, including buildings, equipment, piping, and instruments. The booklet describes the process in detail, and may be obtained by writing to the Blaw-Knox Company. The difference between the Emersol process and the conventional fatty acid extraction processes lies in the controlled crystallization of solid fatty acids from a polar solvent medium, permitting a sharp separation in a single stage, assuring top quality and low operating cost. The solvent is separated from the stearic and oleic acids by distillation and is returned for re-use. In commercial operation the distilled fatty acid mixture is dissolved in methyl alcohol of the proper concentration, along with a small amount of crystal promoter. This solution is chilled in a multitubular agitated crystallizer, resulting in a slurry containing stearic acid crystals in suspension.

This mixture is separated on a continuous rotary filter with cold alcohol to remove the adhering liquid acid. The filter cake is melted and transferred to a still, where the alcohol is removed and returned to the start of the process. The stearic acid is discharged as a final product, ready for finishing and packing. The filtrate of oleic acid-alcohol solution is pumped through an economizer and then to a still, where the solvent is recovered. The oleic acid is discharged as a commercial grade suitable for a great number of industrial applications. The booklet not only gives further detailed process data, but also contains a chart giving the average fatty acid composition and constants of fats and oils, a chapter devoted to the preparation of feed stock for the Emersol process, and Emersol plant operating data, compiled from the records of one of the plants now in operation. The book further gives a list of industrial applications for stearic and oleic acids, a modified Dalican's table for animal fatty acid, typical plant layouts, and a description of a standard 30-ton-per-day plant. Copies of Bulletin 2051 on request.

BLAW-KNOX CO., Dept. CP, Farmers Bank Bldg., Pittsburgh, Pa.

When inquiring specify CP A3622 — see handy form pages 2-3

*

Lever Operated Gate Valves

Describing latest developments in lever-operated gate valves, a new 16-page bulletin, shows industrial and process line applications for which these valves are particularly advantageous. The bulletin describes in detail the features of these valves, including their quick action, straight-through flow, leak-tight seal and self-grinding of the sealing surfaces. Simplicity of design, another featured advantage, is graphically shown in takedown illustrations emphasizing the small number of parts that constitute

these valves. Three standard types of valves are described and listed: Class 250 inside packed; Class 125 with outside stuffing box; and Class 250 with outside stuffing box. A table of typical services shows applications for each type. Illustrations include screwed and flanged types, straight lever and rack-and-pinion operation. Special types, also described, include a shielded model for safety to operator handling two or more valves, a weight-operated model, a special locking device and an extended shaft model. Copies of this informative bulletin (E-150) can be obtained on request.

EVERLASTING VALVE CO., Dept. CP, 49 Fisk St., Jersey City 5, N. J.

When inquiring specify CP A3623 — see handy form pages 2-3

Fractional Horsepower Drives

Fractional horsepower "wedge-belt" drives catalog contains complete specifications on this line of f.h.p. drives and belts. There are four pages of condensed and simplified drive tables for a wide range of center distances and drive ratios. Copies on request.

AMERICAN PULLEY CO., Dept. CP, 4200 Wissahickon Ave., Philadelphia, Pa.

When inquiring specify CP A3624 — see handy form pages 2-3

You should have this
FREE BULLETIN

Technical Bulletin T-6

**THE RESISTANCE of NICKEL and
ITS ALLOYS to CORROSION
by CAUSTIC ALKALIES**

... if you handle CAUSTICS

Here are 20 pages of practical data for users of caustic alkalies. You'll want to have a copy handy when...

- caustics cause rapid corrosion of your equipment
- metallic contamination threatens product purity
- you want to hold down equipment costs.

In addition to discussing nickel and its alloys, this bulletin contains information on the resistance of other metals to corrosion by various concentrations of caustic solutions.

Supplementing the easy-to-read text are a number of tables and charts, as well as photographs of typical equipment. Several of the principal caustic-consuming industries are also briefly described.

Write now for your free copy of this valuable guide. Simply ask for Technical Bulletin T-6. The International Nickel Company, Inc., 67 Wall Street, New York 5, N. Y.

NICKEL INCO ALLOYS
TRADE MARK

NICEL "K" **NICEL** "S" **NICEL** "B" **NICEL** "KR" **NICEL** **INCONEL** **NICKEL** "L" **NICKEL** "Z" **NICKEL**
Sheet...Strip...Rod...Tubing...Wire...Castings...Welding Rods (Gas & Electric)

GM-2227—Chemical Preview, January, 1946 *
When inquiring specify CP A3625 — see handy form pages 2-3

CHEMICAL PREVIEW

NEW LITERATURE

Spray Nozzles for Cooling Water, Chemicals and for General Industrial Uses

Spray nozzles for water cooling, air conditioning and for general industrial uses are shown in new bulletin (Number N-616). One page gives a practical discussion on recooling water by spraying and the text goes into detail on reasons for cooling, how cooling is obtained, spray pond efficiency, arrangement of pipes and nozzles, etc. Nozzles and fittings for such applications are all pictured and described. Several pages are devoted to the use of nozzles in cooling towers and various cooling systems. Also illustrated is application to cooling chemicals such as weak solutions of caustic soda at textile plants. Other installations shown include brine sprays, air washers, lube oil sprays, and color sprays, a typical application is that used in coloring the well known "blue coal." Copies on request.

YARNALL-WARING CO., Dept. CP, Chestnut Hill, Philadelphia 18, Pa.

When inquiring specify CP A3626 — see handy form pages 2-3



Data on "Alundum" and Laboratory Ware of This Bonded Fused Alumina

Of interest to those whose activities entail the use of laboratory ware is a new twelve page illustrated booklet. This illustrates and describes a variety of ware made from bonded fused alumina. This ware is identified by the maker's trade name "Alundum" which also identifies the maker's refractories. The initial pages of the booklet describes "Alundum" and emphasizes the use of the purest form in this laboratory ware — containing more than 99% aluminum oxide. "Alundum" ware is very useful for filtering strong acids and other important uses are for electrical construction and the protection of metallic resistors from corrosion. Properties and technical data are presented in detail and in most convenient form. Separate sections, each illustrated give complete information on crucibles and ignition capsules; incinerating dishes and melting crucibles; flame collar, filtering devices; glass funnels for supporting crucibles; filter crucibles and cones; filter dishes, filter discs; extraction thimbles and rubber gaskets for use with filter dishes; combustion boats; combination of boats which meet the requirements for zircon boats of particularly high quality and "Blue Label RR" Alundum — refractory grain in bottles and containers. Copies of bulletin on "Alundum Laboratory Ware" on request.

NORTON CO., Dept. CP, Worcester 6, Mass.

When inquiring specify CP A3627 — see handy form pages 2-3



Graphs and Data on Degaeration

A comprehensive discussion of corrosion and the part which degaeration plays in checking it is offered in a recently issued booklet. The twenty-pages contain many charts and photographs. There is a graph indicating the effect of pH on the rate of corrosion. Other graphs cover the solubility of oxygen and carbon dioxide in water at various temperatures and pressures. Under the subject heading "Cold Water Degaeration" is a discussion of such degasification. This removal of undesirable gases without addition of heat to, or the increase in temperature of the solution provides an answer to the demands for our deaerated process waters and corrosion control in cold water systems. Copies Bulletin N-15 on request.

ELLIOTT CO., Dept. CP, Jeanette, Pa.

When inquiring specify CP A3628 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946



PROCTOR RESEARCH

eliminates guesswork in selecting drying equipment

Because of the accurate work done by Proctor research engineers, it is possible for Proctor & Schwartz to guarantee the performance of every drying system installed. Every single phase of the dryer's performance is clearly established by Proctor engineers before the sales contract is signed. You can see the effect of this on your production and costs. It, once and for all, eliminates any element of guesswork in selecting your equipment... often saving many production hours and considerable money. Not only this, but so thorough is the work of Proctor research, that it has frequently eliminated the necessity for a pilot plant. The data assembled by Proctor engineers over the years, the up-to-date testing equipment at their finger tips, plus their long experience in dealing with drying problems—makes it possible for them to interpret their laboratory findings in the light of commercial practice. The Proctor drying system recommended to you, after a thorough study of your drying problem, will be one suited in every detail to your individual needs. If you are considering any process that includes drying—it will be to your own selfish advantage to consult Proctor & Schwartz first.

PROCTOR & SCHWARTZ • INC •

PHILADELPHIA 20 • PA •

When inquiring specify CP A3629 . . . see information request blank, pgs. 2-3

Why

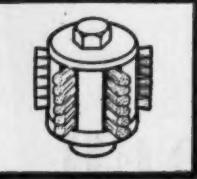
WILSON

TUBE CLEANER BRUSHES

last

10 to 20 TIMES LONGER

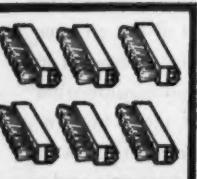
Ten to twenty times as many tubes can be cleaned with a Wilson Expanding Brush than with ordinary sectional brushes before replacement is necessary. When removing the light, powdery deposits or for final polishing of tubes, the savings in time, labor and money derived from this feature alone make the expanding brush an essential part of every tube cleaning equipment.



Wilson
Expanding Brush



Frame or body of
expanding brush



Set of refills or faggots for
expanding brush

MODERN TUBE CLEANERS FOR THE PROBLEMS OF TODAY.



TW-696

THOMAS C. WILSON Inc.
21-11 44th AVENUE LONG ISLAND CITY 1, NEW YORK

When inquiring specify CP A3630—see handy form pages 2-3

Page 70

NEW LITERATURE

Pipe Sealing Compound & Gasket Cement

Single page bulletin gives details on pipe sealing compound and gasket cement. This material known as "Black Magic" is used to make leakproof joints. It is designed to form a permanent seal in pipe joint or gasket and retain flexibility to permit expansion of metals without cracking. Insolubility in gasoline makes it a very suitable compound for use in pump and tank work, oil burner installations, bulk storage and refinery piping and where petroleum oils are used or stored. Available in tubes, small cans, pails and drums.

BOWSER, INC., Dept. CP, Fort Wayne 2, Indiana.

When inquiring specify CP A3631—see handy form pages 2-3

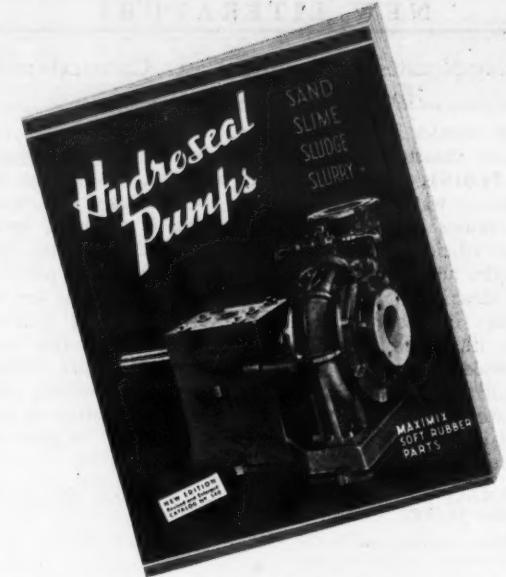
*

Sealed Motors for Service in Dusty, Moisture Laden Plant Areas

A four-page bulletin, describes the "Sealedpower" motor. An exclusive design, the "Sealedpower" motor was developed for use in dusty locations, in places where there is excessive moisture, and for all applications where the conventional alternating-current, totally-enclosed, fan-cooled motor has been used in the past. It is available in sizes from 2 hp to 15 hp. The bulletin, besides containing a detailed description of the features of the motor, includes a cutaway view and pictures of six typical applications. Laboratory tests, made before the motor was placed on the market in 1941, are illustrated and described.

JOSHUA HENDY IRON WORKS (Crocker-Wheeler Div.)
Dept. CP, Ampere, N. J.

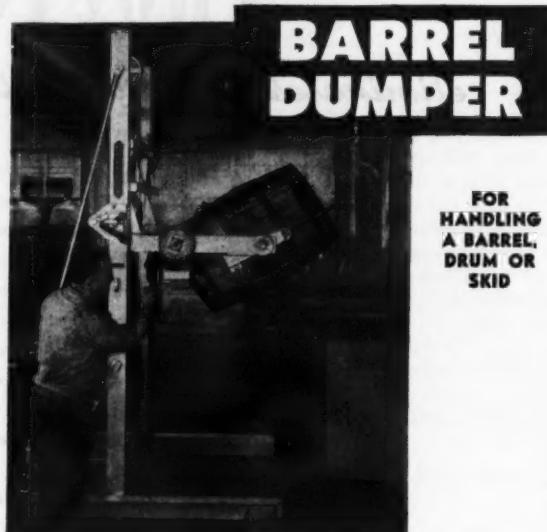
When inquiring specify CP A3632—see handy form pages 2-3



Specially Designed for Abrasives Pumping

Hydrosealing prevents abrasive solution being pumped from wearing the sides of the impeller and the pump side plates. Maximix Rubber Pumping Parts prevent abrasive solution from coming in contact with any metal part of the pump. Result—Power savings of $\frac{1}{3}$ to $\frac{1}{2}$. Maintenance reduced to a fraction, for Maximix generally outlast metal 4 to 6 times or more. Maximix Parts take the wear, and they are easily replaced in the field, making the pump "good as new" in efficiency and capacity. Send for Bulletin 140. The Allen-Sherman-Hoff Co., 1433 Locust St., Phila. 2, Pa. Representatives in Most Principal Cities.

When inquiring specify CP A3634—see handy form pages 2-3



BARREL DUMPER

FOR
HANDLING
A BARREL,
DRUM OR
SKID



Save up to 30% on handling costs. Available in roller or wheel type. Wheels are free-running, full ball-bearing.

Standard sections are 5' and 10' in length. Convenient to carry from place to place where needed. Easily, quickly coupled together to any length without tools, thru exclusive "Quick-Eez" coupling features.

Stands are 4-legged, providing adjustable heights from 12" to 48". Low in cost!

WRITE FOR BULLETIN 10 SHOWING APPLICATIONS

THE E. W. BUSCHMAN COMPANY, Inc.
413 NEW STREET
CINCINNATI 2, OHIO

When inquiring specify CP A3635—see handy form pages 2-3

CHEMICAL PREVIEW

NEW LITERATURE

Piping Layout Booklet Contains Data On Spring Hangers; Vibration Eliminators

Conclusions of prefabricated power piping engineers regarding the design of piping layouts for flexibility have been published in a booklet entitled "Functional Spring Hangers and Vibration Eliminators."

The flexibility analysis of a pipe layout — subject to thermal elongation — determines pipe line movements caused by expansion, as well as the anchoring forces, with the resulting stress. A scientifically designed system, including functional spring hangers and vibration eliminators, permits the installation of most economically shaped structures that allow free flexure of entire piping systems in all planes. Both functional hangers and vibration eliminators use steel spring suspension because it is most reliable and is not particularly affected by temperature, oil, or other handicaps that would impair continued operation. This complete line of functional spring hangers complies in all respects to the requirements set up in pressure piping codes. The springs are totally enclosed and guided, and the assemblies are all of the same length and at the same elevation. They are easily adjusted and locked into position. The short headroom turnbuckle adjustment is $1\frac{1}{8}$ in. minimum for any load. Shocks and vibrations in installations having relatively long runs of pipe and used for conveying compressed air, oil, steam, and other fluids may cause excessive vibration of portions having a natural frequency close to that of the transmitted vibration.

Such vibration can cause considerable damage, not only to the pipe itself, but also to the equipment attached to the pipe. It is controlled by the use of vibration eliminators, which prevent vibration from reaching dangerous proportions, as long as they are applied in proper numbers and locations. The booklet gives many details concerning standard and special types and sizes of functional spring hangers and vibration eliminators, with instructions for their installation, and engineering information which will be of help when adoption of this type of support is under consideration.

BLAW KNOX CO., Dept. CP, 1525 Pennsylvania Ave., N. S., Pittsburgh 12, Pa.

When inquiring specify CP A3636 — see handy form pages 2-3

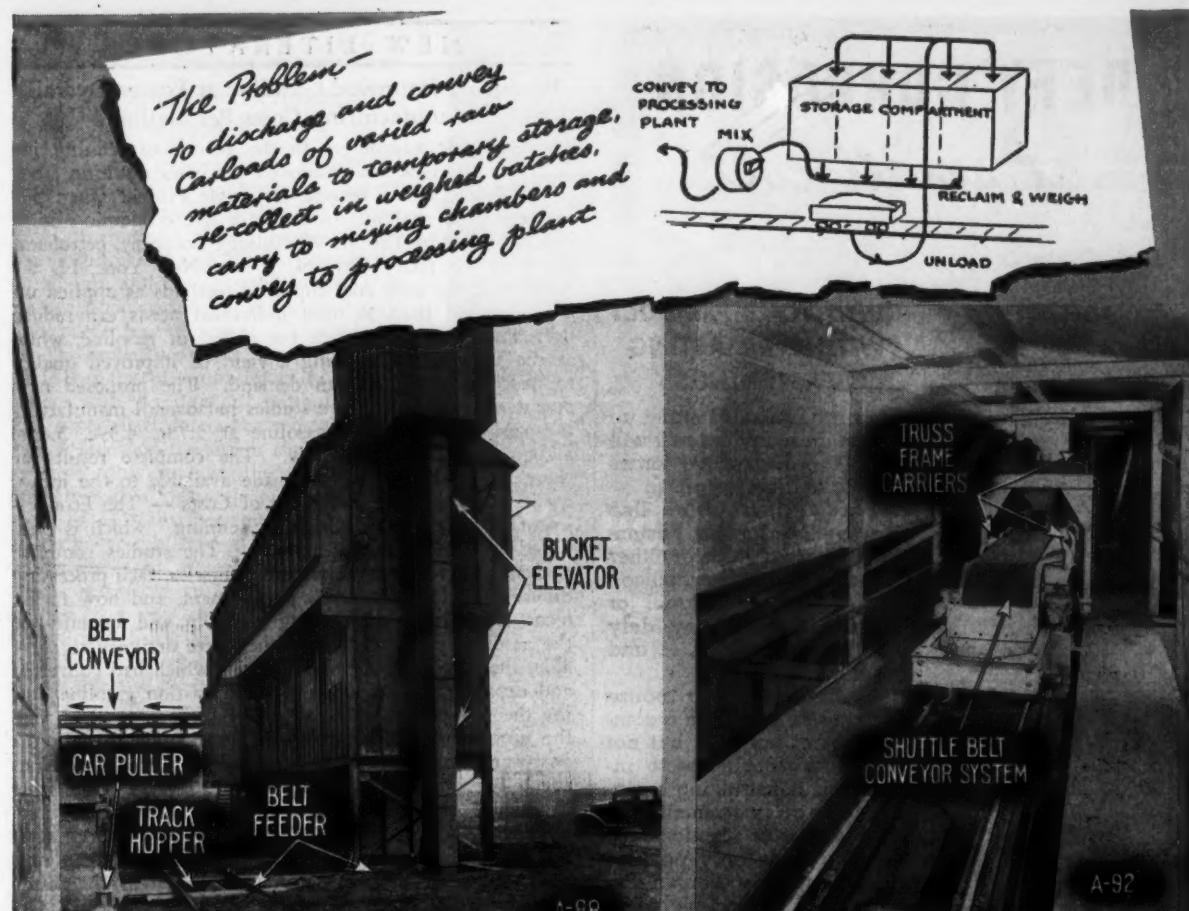
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Friction Sawing Booklet

The new technique for cutting materials known as "Friction Sawing" recently developed through the innovation of high speed sawing machines is now described in detail in a new 24 page booklet being released by the Machine Tool Division of the DoALL Company, manufacturers of the DoALL Zephyr high speed sawing machines. The booklet explains why "Friction Sawing" is possible; its advantages and its limitations. Of particular interest is the "Job Selector" chart included in the booklet which contains a ready reference for selecting the proper sawing factors in cutting SAE steel, armor plate, stainless steel, illium, cast steel and cast iron. Photographs and charts are used to illustrate the cutting rates to be expected from "Friction Sawing" including radii cutting factors, tube sawing and finish. Some 30 photographs show various applications for friction sawing in foundries, experimental laboratories, production, maintenance or salvage work. The book contains valuable information which will be of interest to all persons seeking a faster way to cut and shape ferrous materials. Copies of the booklet are available upon request.

DoALL COMPANY, Dept. CP, (Machine Tool Division) 1301 Washington Avenue South, Minneapolis 4, Minnesota.

When inquiring specify CP A3637 — see handy form pages 2-3



S-A Installation MAKES THIS A TWO-MAN JOB

Upper Left: Bucket elevator and storage bins. Mixing hopper and secondary bucket elevator and belt conveyor system are at far end.

Upper Right: Interior of storage bin building showing shuttle belt conveyor system.

Engineering know-how plus S-A Material Handling Equipment reduce this large-scale problem to a two-man operation. Here is the way it is done.

An S-A Belt Feeder carries the material from track hopper to a Bucket Elevator. The material is then elevated to a reversible overhead S-A Shuttle Belt Conveyor which can be positioned and operated to discharge material into designated bins.

Subsequently a surface-level traveling weigh car collects batches for delivery to a mixer hopper. The mixer then feeds directly into a second bucket elevator. The material is then elevated to a secondary S-A Belt Conveyor which conveys it to the processing plant.

STEPHEN S-A-DAMSON
11 RIDGEWAY AVENUE, AURORA, ILLINOIS MFG. CO. LOS ANGELES, CALIF. ★ BELLEVILLE, ONT.

**Designers and Manufacturers of All Types of
LODGE MATERIALS HANDLING EQUIPMENT**

When inquiring specify CP A3638 . . . see information request blank, pgs. 2-3

DEFY CORROSION at small cost

BUILD YOUR PRODUCT WITH EVERLASTING FASTENINGS

Your product must stand up in use. In many cases it will meet the destructive forces of rust and corrosion.

Forestall trouble! Use Harper Everlasting Fastenings. They're made of either brass, naval bronze, silicon bronze, copper, Monel or stainless steel. They defy rust and corrosion . . . and do it at small cost.

To be sure . . . a bronze bolt costs more than a common steel one . . . but not much more. In most instances, constructing a machine or an instrument with non-ferrous or stainless fastenings adds only pennies to the total cost. Percentage wise, the added expenditure is negligible. But the life of the product . . . the ability to "take it" . . . the probability of freedom from trouble are increased beyond measure.

4360 ITEMS IN STOCK

Harper is known as "Headquarters for Non-Ferrous and Stainless Fastenings" . . . carries large and complete stocks of 4360 different items and is continually adding others. Write for 1945 Catalog.

THE H. M. HARPER CO.

2644 Fletcher Street
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HARPER
EVERLASTING FASTENINGS

BRASS • BRONZES • COPPER
MONEL • STAINLESS

When inquiring specify CP A3639 — see handy form pages 2-3

Page 72

NEW LITERATURE

Producing Improved Gasoline at Lower Overall Manufacturing Costs Per Gallon

The economic advantages to the petroleum refining industry of the new and improved processes resulting from recent developments become strikingly evident when put to the test of analysis. A series of five economic studies just published by The M. W. Kellogg Company, petroleum engineers, of Jersey City, N. J., and New York, N. Y., shows that the new and improved methods as applied on an individual basis to meet individual needs can reduce overall manufacturing costs per gallon of gasoline, while at the same time providing a yield of improved quality to meet peacetime civilian demand. The proposed new operations cited in the five studies put overall manufacturing cost per gallon of gasoline at 5.78c, 4.39c, 3.66c, 4.70c and 4.08c respectively. The complete results of these five studies have been made available to the industry in a new booklet, "A Study of Costs — The Economics of Post-war Motor Gasoline Refining," which is published by the Kellogg Company. The studies comprise analyses of five typical American refineries, each processing different crudes with varying equipment, and now facing reconversion problems both of quality and quantity of the gasoline product. The studies were designed to serve alike the large refining organizations which had converted and expanded to produce primarily aviation gasoline during the war period, and the smaller companies which face the problem of modernizing their equipment to meet the post-war demand for motor gasoline of higher octane rating. These analyses, based on the 30 years oil refining experience of the Kellogg Company, highlight the predominant thought that installation of new equipment is not in itself a guarantee of efficiency; that it can only justify its investment economically by reducing the manufacturing cost per gallon of the gasoline produced. Operating costs, amortization of new equipment, suggested flow diagrams are all included in this new guide book which has been planned to assist each oil refining company in checking its present position against the requirements of "now" competition. In a preface to the booklet, it is pointed out that "the impact of war-matured improvements in gasoline refining is of such intensity as to necessitate a serious review of the processing requirements of the industry." The refiner's need for "individual solutions to his individual problems" is emphasized, and the preface adds "corollary to this, the process development-and-refining engineer must shoulder the responsibilities for providing competitively sound operations in the refining phase." While the figures used are those most closely reflecting current realities, the typical cases examined in the study "obviously cannot duplicate the conditions existing in any one given refinery." Their purpose, the preface explains, is to highlight the alternatives confronting the refiner in his search for a solution to his individual problems. For handy reference by the reader, each of the studies is a self-contained removable unit.

M. W. KELLOGG CO., Dept. CP, 225 Broadway, New York, N. Y.

When inquiring specify CP A3640 — see handy form pages 2-3

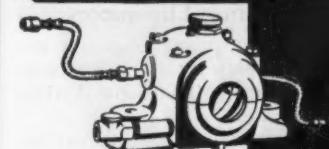
Automatic "Packaged" Steam Generator

Bulletin describes "Econotherm" steam generator which is a completely self-contained, fully automatic unit. Three color illustrations show efficient fire travel through three passes, induced draft principle and fast firing rotary combustion feature. Designed for oil or gas firing — 150 HP. Copies are available on request. Specify Bulletin "A".

C. H. DUTTON CO., Dept. CP, Kalamazoo, Mich.

When inquiring specify CP A3641 — see handy form pages 2-3

From PILLOW BLOCK To PLATEN PRESSES



REX-WELD GIVES YOU BETTER FLEXIBLE CONNECTIONS

Versatile Rex-Weld can efficiently and economically serve for virtually all types of connections in varied industrial fields. Let it work for you! Check these outstanding features: Withstands high pressures and temperatures . . . No seepage of gases and liquids . . . Rust-resistant and non-corrosive . . . Non-collapsible and non-kinking . . . Long mill lengths . . . Heat-proof Rex-Tite Couplings with metal-to-metal seat, impervious to temperature changes and leakage. Write for full information.

Flexible Metal Hose for Every Industrial Use



MAYWOOD, ILLINOIS

Plants: Maywood and Elgin, Ill.

When inquiring specify CP A3642 — see handy form pages 2-3



FACTS/ about ROTARY PUMPS

This bulletin tells you
why and how

BLACKMER ROTARIES

are SELF-ADJUSTING FOR WEAR

WRITE NOW FOR
BULLETIN NO. 307 —

Facts About Rotary Pumps.

Bulletin No. 302 —

Pump Engineering Data

BLACKMER PUMP COMPANY

1840 Century Ave., Grand Rapids 9, Michigan

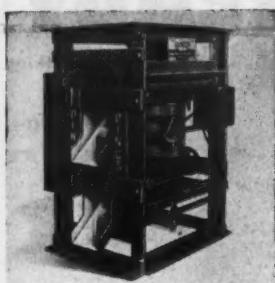
Serving Industry for More Than 40 Years

POWER PUMPS - HAND PUMPS • EZY-KLEEN STRAINERS •

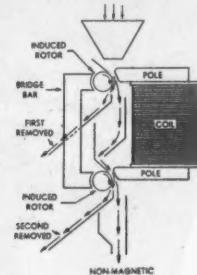
When inquiring specify CP A3643 — see handy form pages 2-3

CHEMICAL PREVIEW

For Difficult Separations



THE DINGS INDUCED ROLL MAGNETIC SEPARATOR



MOST POWERFUL
TYPE SEPARATOR
IN EXISTENCE!

Designed for removing feebly magnetic particles from non-magnetic substances or concentrating slightly magnetic minerals. Widely used to treat barytes, borax, nepheline syenite, salt, tungsten, feldspar, abrasives and other granular materials. Capable of performing separations not possible on other types of machines. ASK FOR CATALOG 770.

Dings Magnetic Separator Co.

510 E. Smith St., Milwaukee 7, Wis.

World's Largest Exclusive Builders of Magnetic Equipment. Established 1899.

When inquiring specify CP A3644 — see handy form pages 2-3



PRESSURE, FLOAT & VACUUM SWITCHES

SQUARE D offers a wide range of switches, designed and built for practically all sizes of water pumps, condensate pumps, vacuum pumps, and air compressors. You'll find this catalog a valuable source of reference. Send for your free copy today. Address Regulator Division, Square D Company, 6060 Rivard St., Detroit 11, Mich.

SQUARE D COMPANY

DETROIT

MILWAUKEE

LOS ANGELES

When inquiring specify CP A3645 — see handy form pages 2-3

NEW LITERATURE

Packingless, Self-Priming, Centrifugal Pumps

Packingless, self-priming centrifugal (Type G) pumps are described in an attractive, illustrated catalog of twelve pages, including friction tables, operation information and instruction on the installation and care of these units. This pump has no packing or mechanical seal. The contact type of seal is eliminated and the "Hydrobalance" seal employed. The pump has but one running part, the impeller, with its integral hydraulic seal. The drive shaft enters the pump on the suction side and the seal is thus required to work only against the atmospheric pressure with a maximum pressure differential of 14.7 lbs. per square inch. The seal is never subjected to and is unaffected by discharge pressures. The fundamental principle of the seal may be likened to a very short "U" tube filled with liquid being pumped and whirled so that the velocity of revolution increases the effective weight of the liquid in the tube. The force set up is used to counterbalance the atmospheric pressure and seal the shaft. Under average conditions, the power consumed in accomplishing this seal will be less than that consumed in the stuffing box of a pump of comparable capacity, it is explained. There is no flow of either air or liquid through the seal, consequently there will be less wear in the seal than in the impeller. Other data fully explains the self-priming system employed and which requires no valves, floats or moving parts of any kind.

THE La BOUR CO., INC., Dept. CP, Elkhart, Indiana.

When inquiring specify CP A3646
— see handy form pages 2-3

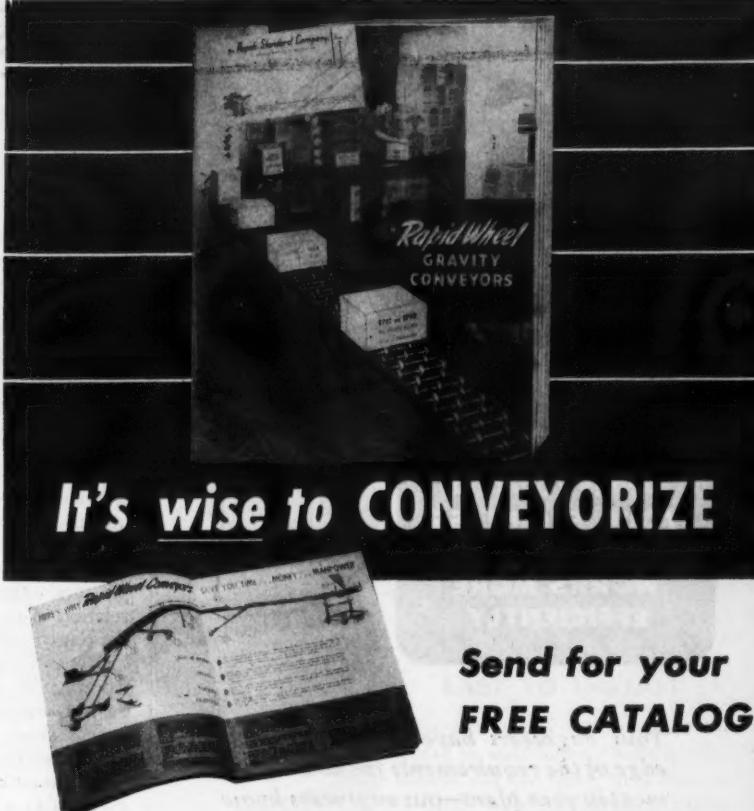
Stainless Steel Fastenings

A comprehensive, 83-page engineering catalog has just been issued and is designed to assist designers, engineers, and other plant executives to select the right size and type of non-corrosive fastening device for any particular job. Included in this manual is a brief introduction to stainless steel, stock sizes and physical dimension of various bolts, cap screws, nuts, pipe fittings, etc., and several pages on special screw machine parts that can be made to order. The book also has an extensive section devoted to engineering tables and data.

This catalog measures 6" x 9" has a stiff cover for easy filing, is attractively printed on coated paper, and is plastic bound. Copies on request.

ALLMETAL SCREW PRODUCTS CO., Dept. CP, 35 Greene St., New York 13, N. Y.

When inquiring specify CP A3647
— see handy form pages 2-3



It's wise to CONVEYORIZE

**Send for your
FREE CATALOG**

This catalog contains information about the construction features and uses of Rapid Wheel Gravity Conveyors, together with complete specifications and data on standard accessories manufactured for use with the conveyors. The catalog also shows on-the-spot photos of Rapid Wheel Gravity Conveyors in action on all types of conveying jobs.

Operating with the smooth gravity principle, Rapid Wheel Conveyors speed and ease the handling of goods wherever the need arises. Portable and easily handled, they may be set up or dismantled in a matter of minutes. They are manufactured in standard 5-foot and 10-foot lengths and in widths of 12" and 18". (Other lengths are manufactured upon request.)

Send for your copy of the new, illustrated catalog today. It shows how you can save time, money and manpower on your package handling operations . . . IT'S WISE TO CONVEYORIZE!

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The Rapids-Standard Co., Inc.

Sales Division—350 Peoples National Bank Bldg., Grand Rapids 2, Michigan

When inquiring specify CP A3648 — see handy form pages 2-3

Page 73



**When We Put Our Heads Together
YOUR STAINLESS STEEL EQUIPMENT WORKS MORE EFFICIENTLY**

Your engineers have intimate knowledge of the requirements for new equipment in your plant—our engineers know how to translate those requirements into stainless steel vessels which will work best in your processing operations. Let's pool this double engineering skill.

We have specialized in the fabrication of stainless steel processing equipment since the alloy became a factor in the process industries. Our experience with this alloy is most useful to you when backed by your knowledge of the job to be done by the finished vessel. In that way you get processing equipment which lasts longer and works at lower operating cost. May we tell you more about our facilities and experience?

S. BLICKMAN, INC. • 701 GREGORY AVE., WEEHAWKEN, N. J.



When inquiring specify CP A3649 — see handy form pages 2-3

Page 74

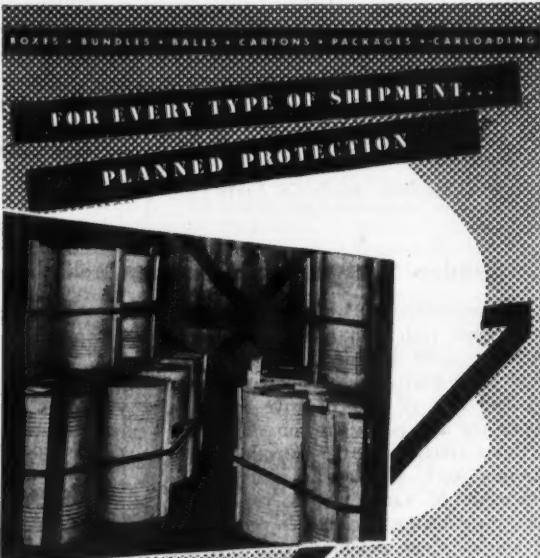
NEW LITERATURE

Compressors For Process Plants Include Models With Non-Lubricated Cylinders

Compressors, vacuum pumps, blowers, centrifugal pumps, ejectors, condensers and diesel engines are illustrated and described in interesting detail in colorful sixteen page catalog. The compressor section displays machines ranging from small air-cooled types to 3000 hp models. Special purposes such as high pressure, refrigeration, and those requiring non-lubricated cylinders are featured. The line of refrigeration compressors is most complete. Units are available for handling any of the standard refrigerants, — ammonia, carbon dioxide, sulphur dioxide, freon, etc. An illustration shows installation of 1500 hp two stage ammonia compressor supplying refrigeration to brewery, ice plant and yeast plant. Compressors with non-lubricated cylinders are useful in food, brewing and other applications in which the compressed air or gas must not come into contact with oil or other lubricants. In these models no oil, grease, water or glycerine is required for cylinder lubrication. These cylinders are available on the maker's heavy duty steam, electric or oil engine driven compressors. Motor and turbo blowers are mentioned in their relation to the industries treated. There are several pages on centrifugal pumps for all services in process plants. Cross sections and schematic drawings in color show the workings of ejectors, barometric condensers and the process of water-vapor refrigeration in a clear, instructive manner. Diesel and gas engines for power service are pictured and the catalog is rounded out with a number of air tools and air hoists. Copies on request.

INGERSOLL-RAND CO., Dept. CP, 11 Broadway, New York, N. Y.

When inquiring specify CP A3650 — see handy form pages 2-3



Chemicals in barrels, drums, pails, cartons or bags are efficiently shipped when SIGNODE METHODS of protection are applied. Whether it's carloading or single units there always is a "best way" and SIGNODE knows the answers.

When inquiring specify CP A3651 — see handy form pages 2-3

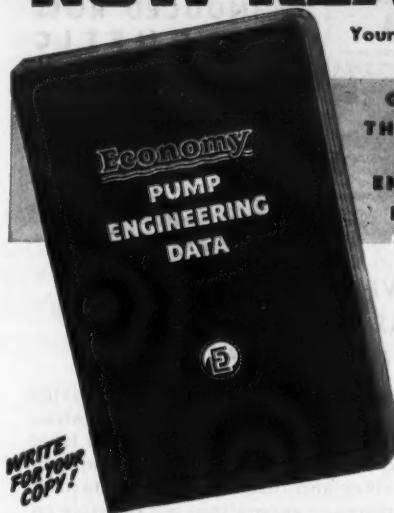
Take advantage of world-wide experience in answering packaging and stowing problems.

YOUR NAME OR TRADEMARK IN Colors

Special lithographed SIGNODE Seals, made up in combinations of colors, provide quick identification for shipments. SIGNODE STEEL STRAPPING CO. 3658 N. Western Ave., Chicago, IL, Illinois 981 Furman Street, Brooklyn, NY, Calif. 477 Brainerd Street, Seattle, WA. Branches in 21 Principal Cities.

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GIVES YOU THE ANSWERS TO PUMP-ENGINEERING PROBLEMS

A timely contribution to industry—416 pages of factual data just when vital post-war pump problems require authentic facts, sound experience and advanced engineering practice.

Here, under one cover, are hundreds of handy tables and diagrams you need every day. Revised, improved and new data governing the correct layout and installation of sewage, drainage, processing, heating systems, etc. Describes clearly and exactly the way to do the job right. Indispensable to Engineers, Plant Managers, Maintenance Men, etc. Sent free to Executives in response to their requests on business letterheads. Otherwise, \$2 per copy.

ECONOMY PUMPS, INC.

HAMILTON, OHIO • U. S. A.

When inquiring specify CP A3652 — see handy form pages 2-3



THIS NEW AJAX COUPLING CATALOG

Just off the presses!

Every man who designs, builds, sells, operates, or maintains direct-connected machinery is invited to get a personal copy of this new catalog covering Ajax Flexible Couplings.

It gives latest working data on all types including Standard, Mill Motor (taper bore), Shear Pin, Bolt-on, Brake Drum and Detachable Hub Couplings.

Phone your nearest Ajax Flexible Coupling representative or write direct to

Patents Make Jobs

AJAX FLEXIBLE COUPLING CO. INC.

Incorporated 1920

When inquiring specify CP A3653 — see handy form pages 2-3

WESTFIELD, N. Y.

CHEMICAL PREVIEW

NEW LITERATURE

Booklet Presents Comprehensive Study on Latest Methods of Drier Analysis

"The Qualitative and Quantitative Determination of Drying Metals in Driers and Surface Coatings," a new booklet describes the latest methods of drier analysis. The booklet is a most complete reference work on drier analysis and gives the paint chemist a convenient, single source of reference for drying metal determination for use in his laboratory control work, in analyzing complaints, and in studying competitive materials. It describes in detail three methods of drier determination, two qualitative and one quantitative. The methods cover analyses for drying metals in paints and varnishes before application, in dried paint and varnish films, or in powdered, liquid or plastic driers. The first, "Qualitative Determination of Drying Metals in Paste or Liquid Driers," describes a spot test method which accurately identifies the common drier metals, lead, manganese, cobalt, zinc, calcium and iron, in the presence of each other. The reactions can be carried out in one to two minutes time with one drop of material. The other, "Quantitative Estimation of Drying Metals in Driers or Surface Coating Materials," is ideal for the quantitative determination of drying metals in driers, according to Mr. Minich, because of its simplicity and accuracy and the small size of the sample required. The third method, "The Detection of Metallic Driers in Varnishes and Oils by Spot Test Analysis," differs somewhat from the other method by requiring ashing of the specimens which concentrates the metals present and provides greater accuracy where metal contents may be quite small, as is usually the case in dried paint and varnish films or in paint and varnishes before application. Free copies of the booklet are available on request.

NUODEX PRODUCTS CO., Inc., Dept. CP, Elizabeth, N. J., New Jersey.

When inquiring specify CP A3654—see handy form pages 2-3



Rotary Coolers & Dryers for Sterilization, Drying Heating of Materials

A new bulletin featuring new developments in rotary dryers and coolers for the milling and processing industry. Illustrations and text show that typical installations of this equipment are used in sterilization of food products, drying or heating soybeans, cottonseed or other materials before oil is extracted; drying such granular vegetable materials as peanut shells and heating and drying many types of granular material from which moisture must be removed. The dryers are available in a variety of sizes. These units can be stacked up to four high for maximum production output. Perfect steam circulation, plus use of heavy steel sifter blades assures uniform drying. With the atmospheric coolers, excess heat from dried granular materials can be quickly but safely removed. Multiple stacking is also possible with this unit, permitting a combination cooler-dryer installations. Detailed information is presented in capacity and dimension tables and the bulletin also contains suggestions as to information required to assure successful application of coolers and dryers. These factors include: percentage of moisture in material entering and leaving unit, temperature at which dried material can be used; weight per cubic foot and specific heat of material to be dried and such characteristics as screen analysis of corrosive nature. Bulletin is Number B6378 and is available on request.

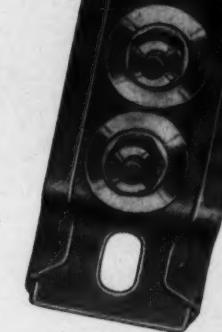
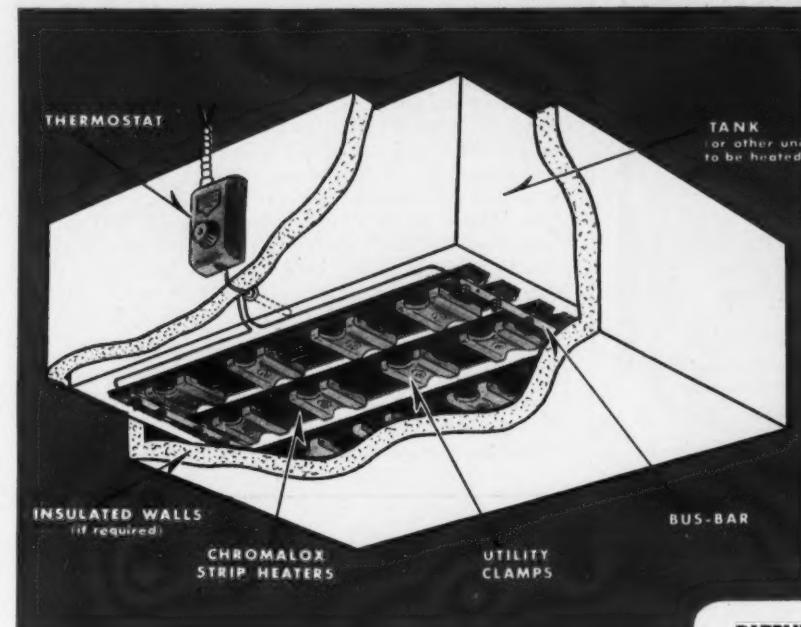
ALLIS-CHALMERS, 605 Milwaukee 1, Wis.

When inquiring specify CP A3655—see handy form pages 2-3



"Heat that never Sleeps"

Chromalox Electric Strip Heaters



EASY TO INSTALL

CHROMALOX Strip Heaters are installed by welding stud bolts to tank bottom and clamping Strip Heaters in place with CHROMALOX Utility Clamps. (Illustrated left.)

For Process Kettles, Cleaning and Plating Tanks, Tempering Baths

You get quick heat—when and where you want it—with CHROMALOX Strip Heaters. They provide dependable, efficient, economical "around the clock" service in chemical applications requiring continuous, accurately-controlled heat temperatures.

Users of Heatfind "it more than pays" to change to CHROMALOX Electric Heaters. In thousands of chemical-plant applications—for heating liquids and gases . . . for heating pipes . . . for processing, degreasing, making steam and drying—CHROMALOX Heaters are proving themselves in performance, reliability and long service life.

Our Application Engineers are glad to discuss your heat requirements with you; no obligation.

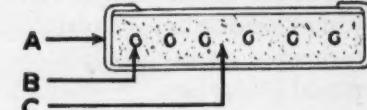
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CHROMALOX
Electric Heating at its Best!

PATENTED CHROMALOX CONSTRUCTION

ASSURES

QUICK HEAT—LONG LIFE—OPERATING ECONOMY



- A. Sheath of Rust-resisting Iron or High-temperature Chrome Steel, constructed to remain rigid and flat under all work conditions.
- B. Highest quality Nickel-chromium Resistance Wire.
- C. CHROMALOX Refractory compacted under tremendous hydraulic pressure.

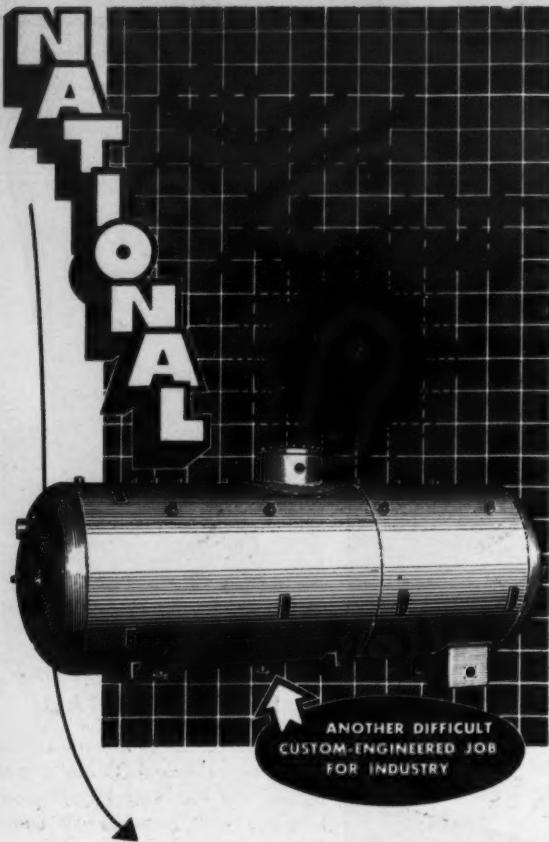
The heat source of CHROMALOX Electric Heaters is nickel-chromium wire embedded in a special refractory and encased in a metal sheath. Efficient heat transfer from heat source to sheath is assured by hydraulically compacting refractory surrounding resistance wire. The unit is fired to semi-vitrify and cure the refractory. Thus the refractory becomes an insulator around wire and serves as an efficient conductor to transmit heat to the sheath surface. All CHROMALOX Heaters are thoroughly tested during and after manufacture to meet rigid standards of performance.

FOR MORE "KNOW-HOW"

Write for "100 Ways to Apply Electric Heat" booklet, Catalog 42 and address of CHROMALOX Application Engineer serving you.

EDWIN L. WIEGAND COMPANY • 7517 THOMAS BOULEVARD • PITTSBURGH 8, PA.

When inquiring specify CP A3656 . . . see information request blank, pgs. 2-3



Fifty years of specialized fabrication experience, plus unexcelled modern production facilities are your assurance that NATIONAL can do your most difficult job—satisfactorily.

NATIONAL will gladly work with you either while your plans are in the formative status or from your completed blueprints.

LET'S TAKE a Plant Tour
Send today for your copy of our new illustrated brochure—describing National facilities and products.

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API ASME U-58 U-59 Codes • Stress Relieving • X-ray
Pledged to Quality Since 1893
WASHINGTON, PENNA.

When inquiring specify CP A3657 — see handy form pages 2-3

Page 76

NEW LITERATURE

Bending Presses And Bulldozers

Details of construction of bending presses and bulldozers are illustrated and tabulated in eight page catalog (2010B). The presses are versatile tools that do many types of work quickly and easily. With various jigs, dies, and tools available or that can be developed for special purposes work can be performed on steel, aluminum and the many alloy metals. Bending, forming, blanking, rubber forming, drawing and multiple punching are easily performed. Several operations may be performed on each stroke of the ram by passing the work successively through various dies set in position along the bed of the machine. Taper and conical shapes are made with standard bending dies by use of the ram tapering mechanism. The bulldozers are especially advantageous for the bending and forming of heavy bars and plate. Crankshafts and refrigerator cabinets are examples of special work produced on these units. Because the frames are of the all-welded construction, far greater strength and rigidity are obtained for the weight of metal used than would otherwise be possible. The bulletin gives detailed information on the presses in their 29 different sizes for bending, forming, multiple punching, etc. from light gauge to one inch thick and for lengths up to 20 feet. Bulldozers are available in sizes up to 220 tons bending capacity. Included in the bulletin is data on special bed and ram designs. Copies of the bulletin on request.

CLEVELAND CRANE & ENG'G CO., Dept. CP, Wickliffe, Ohio.

When inquiring specify CP A3658 — see handy form pages 2-3



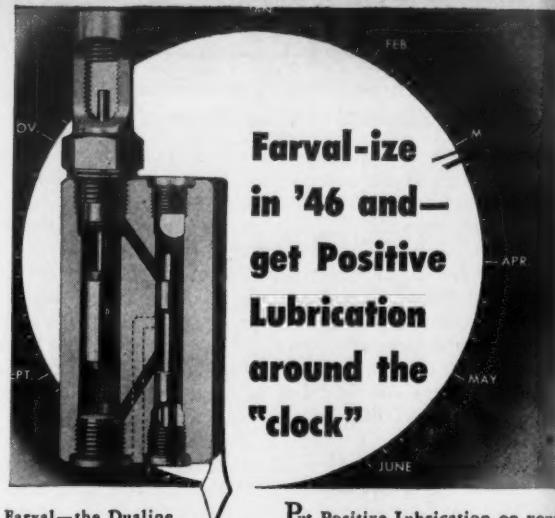
Compare its design with that of any other coupling. No welding in its forged steel cover and sleeve. No flexible hub connections to fatigue. No leakage through its positive Wafflex Seal. No added stress on shaft or bearings while compensating for misalignment. By eliminating the chief causes of excessive wear and repair you insure longer trouble-free service with this WALDRON COUPLING.

Catalog containing construction details, rating tables, etc., will be sent on request. No obligation.

COUPLING DIVISION

JOHN WALDRON CORP.
Main Office and Works
New Brunswick, COUPLINGS
New Jersey

When inquiring specify CP A3659 — see handy form pages 2-3



Farval—the Dualine System with the Positive Piston Displacement Valve—that has but 2 Moving Parts—is Fully Adjustable—and with a Tell-tale at each bearing to show the job is done.

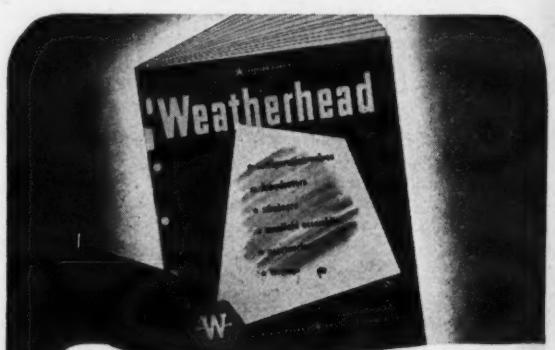
Serving Industry for 20 Years

Farval-ize in '46 and—get Positive Lubrication around the "clock"

Put Positive Lubrication on your production schedules for '46. Give every bearing proper lubrication 24 hours a day, every day this year, and you will protect your schedules against shutdowns—reduce your costs and widen your profit margin, even with ceiling prices • Get an appointment with your nearby Farval Representative at the top of your list of things to be done at once. The Farval Corporation, Cleveland 4, Ohio.



When inquiring specify CP A3660 — see handy form pages 2-3



New REFRIGERATION CATALOG

No refrigeration engineer, designer, serviceman or purchasing agent should fail to write for our newest Refrigeration catalog. It's free—and chock-full of detailed data on the multitude of refrigeration parts that are both original installation and replacement items. For information or literature write or phone any Weatherhead branch office.



When inquiring specify CP A3661 — see handy form pages 2-3

CHEMICAL PREVIEW

NEW LITERATURE

Commercial Availability of Ethylamines Permits Extensive Use in Various Process Industries

An announcement and detailed information concerning Ethylamines are to be found in a four page bulletin recently issued. The bulletin points to the fact that "demands for America's huge synthetic rubber program and other critical industries during the war period made it necessary for this sole producer of Ethylamines to greatly expand manufacturing facilities — as a result the organization now has production experience and plant equipment needed for the economical manufacture of these versatile chemicals in unlimited quantities." This should prompt interest, especially among plants concerned with processes using these products as solvents or reactants. In many of these cases use under the then prevailing conditions were not commercially feasible. As an aid in adapting the Ethylamines for utilization in various industries, the bulletin presents in condensed form important present applications as well as those suggested in the technical literature. These are in part: Monoethylamine: — Petroleum: Solvent extraction; preparation of amides useful in refining of lubricating oil; complex salt with CuCl useful for recovery of diolefins; intermediate for preparation of demulsifier. Solvent: Selective solvent in petroleum and vegetable oil refining; solvent for wide range of organic compounds. Textiles: Intermediate for synthesis of surface active agents, dyestuffs and sizing compounds. Emulsions: Fatty acid soaps as emulsifying agents for self polishing waxes. Rubber: Synthesis of vulcanization accelerators; stabilizer for latex. Plastics: Condensing agent for urea-formaldehyde molding mixtures; preparation of various nitrogen ethylated amides which are useful as plasticizers; condensation products with other resin forming materials useful as moldings, coatings, adhesives and sizing compounds. Ceramics: Deflocculating agent for increasing strength of clay bodies. Pharmaceuticals: Synthesis of medicinals. Photography: Synthesis of photographic dyes. Diethylamine: — Petroleum: Solvent extraction; preparation of amides useful in refining of lubricating oil; complex salt with CuCl useful for recovery of diolefins; intermediate for preparation of gasoline stabilizer. Solvent: Selective solvent in petroleum and vegetable oil refining; solvent for wide range of organic compounds. Textiles: Intermediate for synthesis of surface active agents, dyestuffs and sizing compounds. Rubber: Intermediate for synthesis of a number of ultra-accelerators of vulcanization and accelerator activators for natural and synthetic rubbers. Plastics: Condensation with other resin-forming materials to give products useful for moldings, coatings, plasticizers and polishes. Pharmaceuticals: Intermediate for synthesis of certain local anesthetics, antimalarials, antiseptics and other medicinal chemicals. Cosmetics: Intermediate for synthesis of emulsifiers. Triethylamine No. 193: — Petroleum: Agent for improving recovery of catalyst in fluid cracking operations. Solvent: Catalytic solvent in chemical synthesis; solvent for many organic compounds; stabilizer for certain chlorinated hydrocarbons. Textiles: Preparation of wetting, penetrating and water-proofing agents of quaternary ammonium types. Rubber: Preparation of accelerator activators for natural and synthetic rubbers. Cosmetics: Preparation of emulsifying agents and germicides. (If required for specific applications, an anhydrous grade of Triethylamine is available at increased price.) The bulletin tabulates specifications of these amines and gives other pertinent data as to containers, samples etc. Copies on request.

SHARPLES CHEMICALS, INC., Dept. CP, Philadelphia, Pa.
When inquiring specify CP A3663 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

WEIGH THE ADVANTAGES

OF PLUG VALVES
THAT NEVER
STICK!



A turn to the left lifts the plug; a turn to the right restores it to perfect adjustment in the body. In the toughest kinds of service, HAMER Plug Valves are ready for instant, easy operation — always!



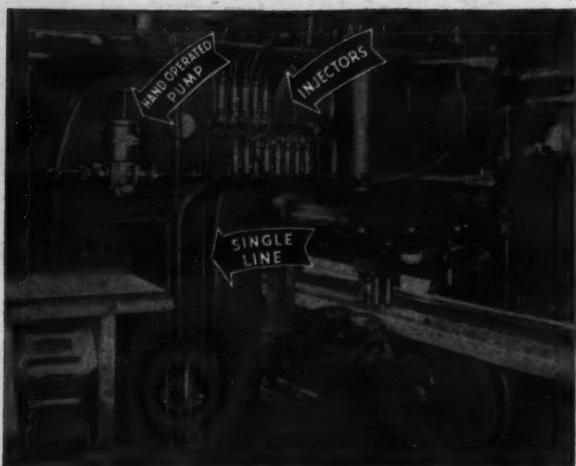
HAMER
PLUG VALVES
Never Stick!

WRITE FOR THE HAMER CATALOG

HAMER OIL TOOL COMPANY • 2919 Gardenia Avenue • Long Beach 7, California

When inquiring specify CP A3663 . . . see information request blank, pgs. 2-3

"Down Time" is Lost Time!...
Install LINCOLN
Single line
CENTRO-MATIC LUBRICATING SYSTEMS



Machine "down time" results in increased production costs—Today's accelerated production has brought out the inadequacies of older, time-consuming methods of lubrication—has proved the importance of Centro-Matic centralized lubricating systems for reducing "down time"—saving power—preventing accidents.

Lincoln Centro-Matic Systems are designed for simplicity and dependability. They are easy to install—a single supply line from the pump to the injectors—one injector connected to each bearing, mounted singly or manifolded. The pump can be time clock or push-button controlled, power-operated, or manually-operated.

Engineering Service...

Our lubrication engineers are ready to assist you with any problems you may have pertaining to the lubrication of your machines and equipment. We invite you to make use of this service which is offered to you without obligation.

LINCOLN

Pioneer Builders of Engineering Lubricating Equipment

LINCOLN ENGINEERING COMPANY, ST. LOUIS 20, MISSOURI
 Please send us full information on Lincoln Centro-Matic Lubricating Systems.

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Company _____

Address _____

City _____ State _____

CP 82526

When inquiring specify CP A3664—see handy form pages 2-3

Page 78

NEW LITERATURE

Forged Iron & Alloy Gaskets for High Pressure & High Temperature Service

"Gruv-Seal, Forged Iron and Alloy, Ring Gaskets" is the title of a new booklet which gives complete information and buying data on forged gaskets made of ingot iron, nickel, chromium and monel metals. These gaskets are particularly suitable for high pressure and high temperature service, and various applications and advantages of these gaskets are presented for different service requirements. Forging methods used to make these gaskets are also presented. This well-illustrated, two-color brochure contains four tables giving A. P. I. and A. S. A. ring gasket sizes and special stock sizes, as well as list prices.

STEEL IMPROVEMENT & FORGE CO., Dept. CP, 970 E. 64th St., Cleveland, Ohio.

When inquiring specify CP A3665—see handy form pages 2-3

Booklet Discusses Corrosion In Unit Heaters

"Corrosion in Unit Heaters." 12 page booklet discusses corrosion and its influence on unit heaters and their efficient operation. Contains technical information under various headings as "What Is Corrosion?", "What Prevents Corrosion?", "One Metal (Cast Iron) Resists Corrosion", "What Metals Are Vulnerable to Corrosion?", "Where Certain Metals Should Not Be Used," "Selection of Proper Unit as Important as Machinery for Production Line." There are illustrations of cast iron "fin" type unit heaters and installation views.

D. J. MURRAY MFG. CO., Dept. CP, Wausau, Wis.

When inquiring specify CP A3666—see handy form pages 2-3



Faced by a SPRAY NOZZLE Problem?

Spraying Systems has the answer. Thousands of correctly designed, precision built spray nozzles provide the right combination of capacity, atomization, spray angle, spray pattern and impact, for top efficiency in any spraying process. Catalog 22 contains detailed information. Send for your copy today.

SPRAYING SYSTEMS COMPANY

4037 West Lake Street • Chicago 24, Illinois

SPECIALISTS IN THE DESIGN AND MANUFACTURE OF SPRAY NOZZLES

When inquiring specify CP A3667—see handy form pages 2-3

NEW CATALOGS!

FOR STEEL VALVE USERS

These New Edward Catalogs

contain dimensional data, sectional illustrations, design details, materials and many helpful suggestions in steel valve selection and operation. Be sure they are in your file.

CATALOG 12-B Non-Return Valves, globe or angle, flanged or welding ends; 300 to 1500 lb sp.

CATALOG 12-D Blow-Off Valves, straightway or angle, flanged or welding ends; 300 to 1500 lb sp.

CATALOG 12-E Gate Valves, Cast steel flanged or welding ends, for service from 150 to 3600 lb.

A request on your company letterhead will bring the catalog you desire.

THE EDWARD VALVE & MFG. CO., INC.
 1230 WEST 144th STREET
 EAST CHICAGO, INDIANA



Edward® Valves
 Forged Steel & Cast Steel

When inquiring specify CP A3668—see handy form pages 2-3

WHAT A MIXER this is!

GROEN
 MIXER TYPE
 KETTLE



Count on this thoroughly dependable kettle to produce the most efficient cooking and mixing you demand. Built by GROEN, world's largest producers of Stainless Steel Steam Jacketed Kettles. It is exquisitely designed, engineered and tested for consistent performance.

Equipped with single or double motor driven agitators. Works fast. Easy to handle. Get details on this and other famous GROEN Kettles.

Hundreds of leading Chemical Plants, etc. use and endorse this great kettle.

GROEN MFG. CO.

4535 W. Armitage Ave. Chicago 39

When inquiring specify CP A3669—see handy form pages 2-3

CHEMICAL PREVIEW

NEW LITERATURE

Separator for Removal of Oil, Moisture, Scale From Compressed Air

"Airfuge," a new separator for removing moisture, oil, scale, etc., from compressed air is described in four page illustrated bulletin. Utilizing the centrifugal principle which has characterized steam and oil separators made by this company, the new product features simplicity of construction and operation and highly efficient separation. Repeated tests show that air delivered by the Swartwout Airfuge is 99% or more free of contamination. Air entering the inlet is diverted positively to the inner wall of the round body and unwanted substances whirl out of the air stream and drain to the bottom. The cleaned air may be taken off horizontally or vertically from pipe-tapped ports. An integral float-operated trap releases condensate automatically. Separator is made of high-tensile iron; interior parts of corrosion-resisting materials. Bottom easily removed if necessary for cleaning. Made in three sizes for varying capacities and with a range of pipe connection sizes. Bulletin S-13 on request.

SWARTWOUT CO., Dept. CP, 18511 Euclid Ave., Cleveland 12, Ohio.

When inquiring specify CP A3670 — see handy form pages 2-3



Pocket Manual on Extinguishing Motor Vehicle Fires Lists ICC Regulations

A twenty-four page, illustrated pocket manual, "How to Put Out Motor Vehicle Fires," is available from major fire extinguisher manufacturer. It emphasizes the importance of having an Underwriters' approved extinguisher conveniently placed and inspected regularly. Then in the proper sequence it briefly describes each step from cutting the ignition and getting passengers out right down to the proper procedure after the fire has been extinguished. The back of the booklet contains illustrations of a number of different types of fire extinguishers and pointers on proper operation. One page of the manual contains a listing of Interstate Commerce Commission motor carrier safety regulations. Copies on request.

GENERAL DETROIT CORP., Dept. CP, 2272 E. Jefferson Ave., Detroit 7, Mich.

When inquiring specify CP A3671 — see handy form pages 2-3



Complete Data on Thirty-two Brass, Bronze, Iron Alloys Widely Used in Industry

Formulas useful in calculating the weight of castings and definitions of terms used in materials testing are included in an unusual forty-four page illustrated catalog just published. The catalog gives the composition, applications and complete physical properties of thirty-two of the brass, bronze and iron alloys most generally used in industrial and engineering applications. The book should be valuable in the reference file of any engineer or executive in the industrial field. The one-hundred and seventeen year old foundries division of this company pours castings weighing but a few ounces to over one-hundred thousand pounds. For foundry efficiency the foundry is divided into sections in order that large iron and bronze castings do not interfere with the production of smaller ones. The foundry has one of the country's largest pattern shops, and a new testing laboratory for chemical and physical testing assures close control over its products.

BALDWIN LOCOMOTIVE WORKS, (Cramp Brass & Iron Foundries Div.) Dept. CP, Philadelphia, Pa.

When inquiring specify CP A3672 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

K JET PUMPS...



are as Trouble Proof as an End-Wrench

• Everyone knows that there is nothing about an end-wrench to get out of order. It is a simple, functional tool designed for efficient service.

SK Jet Pumps have much in common with the end-wrench. They have no moving parts and there is nothing about them to get out of order . . . no glands to adjust or replace, no bearings, no rotating or reciprocating parts to wear. They lift or transfer liquids or solids, produce vacuum or pressure, condense vapors, mix gases, heat and agitate liquids . . . perform many functions with

a simplicity which assures continuous, trouble-free operation.

Can SK Jet Pumps be used to solve your pumping problems, improve your process operations, reduce your costs? The research and engineering organizations of Schutte & Koerting are available for consultation on your specific problems. Since 1876 they have pioneered the development and application of jet pumps of all types, from the simple single-stage aspirator to the highly developed multi-stage jets for extreme vacuum.

STEAM JET	LIQUID JET	AIR JET
Agitators	Agitators	Agitators
Compressors	Condensers	Compressors
Electors	Compressors	Electors
Exhausters	Exhausters	Exhausters
Heaters	Mixers	
Vacuum Boosters		

. . . both SINGLE- and MULTI-STAGE.
Write today for Condensed Catalog J-3 which outlines many industrial applications of the jet principle.

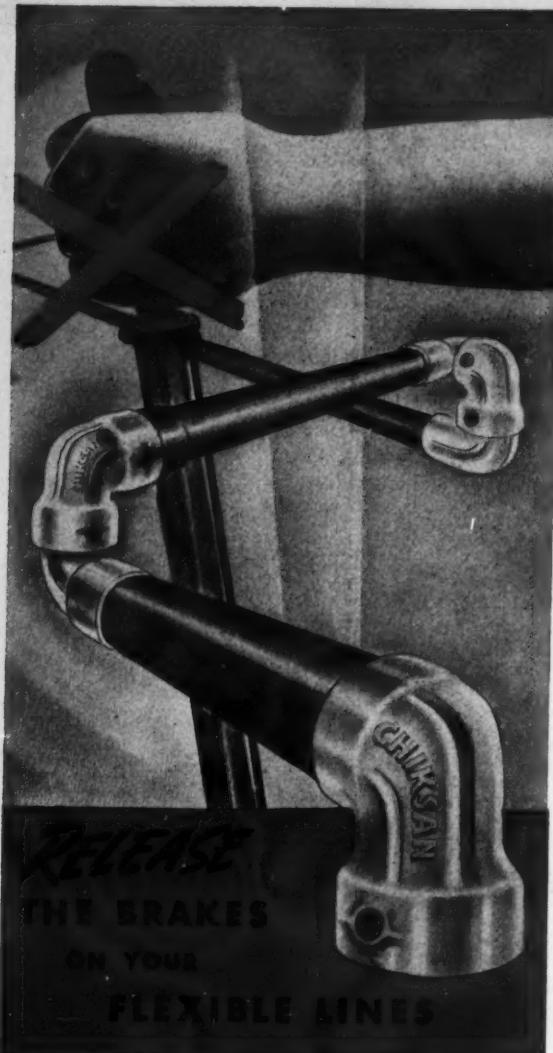
SCHUTTE & KOERTING COMPANY

Manufacturing Engineers

1173 Thompson Street
Philadelphia 22, Pennsylvania



When inquiring specify CP A3673 . . . see information request blank, pgs. 2-3



**RELEASE
THE BRAKES
ON YOUR
FLEXIBLE LINES**

When you use CHIKSAN Ball-Bearing Swivels, you get full 360° turning on double rows of ball bearings. Exceptionally low torque eliminates all strains and stresses on pipe, fittings and connections. Chiksan Swivels retain their flexibility because there is nothing to tighten or adjust... no packing glands or stuffing boxes to require periodical tightening... no possibility of squeezing the packing so hard the joint won't turn. CHIKSAN Ball-Bearing Swivels are supplied in over 500 different Types, Styles and Sizes for rotation in 1, 2 and 3 planes... and for every purpose.

REPRESENTATIVES IN PRINCIPAL CITIES ★ EXPORT REPRESENTATIVE:
CHIKSAN EXPORT COMPANY, BREA, CALIFORNIA ★ Branches:
NEW YORK, 50 Church St. • HOUSTON, 817½ Main St.



When inquiring specify CP A3674 — see handy form pages 2-3

Page 80

NEW LITERATURE

Conveyors & Up-enders Used in Drum Reclaiming and Leading Operations in Refineries

Of interest to plant executives in the petroleum industry who are concerned with the handling of drums in various operations is a new bulletin that features detailed layout of actual barrel conveyor system as installed in large oil company plant, that of the Standard Oil Co. at Bayonne, N. J. Successive steps in handling barrels or drums from the receipt of empties to the delivery of filled barrels to ships, trucks or cars is completed over these special conveyors. Barrel conveyor installations like this have lent themselves to continuous-operation service where crippled barrels are re-claimed. Arriving at receiving platform they are thoroughly inspected. Where necessary barrels are sent to de-denting machine. They are filled with water under pressure, pressure is maintained and operator hits side of barrel a tap or two with sledge and dents disappear. Barrel is then cleaned, painted and stenciled. In addition to the diagrammatic layout there are numerous photos showing how these conveyors function in moving drums through these reconditioning operations. Also shown are photos and blue prints of conveyor installations at other plants where they transfer barrels to up-enders. Complete information on these live roll conveyors and up-ending units as well as copies of the bulletin on request.

LAMSON CORP., Dept. CP, Syracuse 1, N. Y.

When inquiring specify CP A3675 — see handy form pages 2-3

*

Tramrail Systems-Switches, Fittings, Rails; Shielded Electrification for Conductors

A fully illustrated twelve page brochure analyzes material handling costs and illustrates "Below the hook" devices, large variety of ceiling fittings, Teerails, Beamrails in six sizes, switches, yoke assembly, trolleys and the new shielded electrification for conductor bars. The Ohio "Tramrail Shielded Electrification" embodies an outstanding improvement. This design permits improvements in safety, simplicity in handling electrical problems, compactness in tramrail switches, savings in headroom, and eliminates considerable wiring, among other advantages. It provides protection from dust and dirt. Chance of casual contact with conductor bars is remote due to this shielding. One current collector with two or three shoes handles all circuits. Nearly forty important advantages are listed in the section on this system in the catalog. Copies on request.

FORKER CORP., Dept. CP, 1848 E. 47th St., Cleveland 3, Ohio.

When inquiring specify CP A3676 — see handy form pages 2-3

*

Tubing, Fittings & Fabricated Piping

Eight page bulletin contains data and illustrations that provide a detailed presentation of practical suggestion of installation and applications of tubings, fittings and fabricated piping. The various types of materials in which tubing is available is listed and corrosion resistant properties are emphasized. For example the advantages of Iconel tubing in handling certain food processing applications is mentioned as are those of 316 stainless steel. Specifications, diagrams, etc. make it easy to check requirements. Copies of bulletin "Weldco Tubing" on request.

YOUNGSTOWN WELDING & ENGINEERING CO., Dept. CP, Youngstown 9, Ohio.

When inquiring specify CP A3677 — see handy form pages 2-3

**IF IT'S HOT WATER
YOU WANT**

THE JOHNSON Instant HEATER



• In sheer heating ability the Johnson "Instant" Heater has set the pace for many years. The illustration shows how its ingenious design routes water first inside, then outside, the steam heated chamber — secures faster, greater heat transfer for a unit of its size. Note, too, the simple, rugged construction, which eliminates any need for reducing valves; you can hook the Johnson Heater right up to your high pressure steam lines. Used for a wide variety of applications; available in complete range of sizes and capacities.

Write for new bulletin

THE
Johnson Corporation

826 WOOD STREET, THREE RIVERS, MICHIGAN

When inquiring specify CP A3678 — see handy form pages 2-3



"Today in Chemicals"

— a newsletter summary of all highlights of the industry. In addition to this feature The Journal of Commerce brings you each day a complete market report of all chemicals—over 400 daily quotations on Heavy and Fine Chemicals, Coal Tar Products, Paint Materials, Vegetable and Animal Oils, Tanning, Dyeing and Plastic Materials. General news of the industry, surplus offerings and company news are continuously featured.

— Other Daily Features —

include similar news treatment of Shipping, Insurance, Foods, Textiles and Fuels—as well as all other important general and business news.

Send \$5 Today for the next 77 issues!

**THE
Journal of Commerce**
NEW YORK
53 Park Row, New York 15, N. Y.

When inquiring specify CP A3679 — see handy form pages 2-3

CHEMICAL PREVIEW

More Uniform • Faster
Drying of Any Material
in Any Quantity

GEHNRICHS OVENS



Whether it's drying or curing process chemicals, plastics, fabrics, ceramics, impregnations, foods, etc., Gehnrich Ovens and the improved method of recirculating air heating (gas, oil, steam or electric) assure your product of absolutely uniform heat treatment in minimum time. Such users as American Cyanamid, American Viscose, Durez Plastics, du Pont, General Electric, Hercules Powder, Johns-Manville, Norton Co., Schenley Distillers, and others know the meaning of better process drying in Gehnrich Ovens.

Investigate how Gehnrich Ovens can help improve your drying processes.

Write for Catalog No. 114.

GEHNRICHS OVEN DIVISION

Cabinet, Truck and W. S. ROCKWELL COMPANY
Conveyor Ovens 220 ELIOT STREET
for Process Drying FAIRFIELD, CONN.

When inquiring specify CP A3680 — see handy form pages 2-3

**One Man
Couldn't
Do it
ALONE!**



SAVE LABOR!

ONE MAN handles drum or barrel loads up to 800 pounds—quickly, easily, and with no manual lifting—when furnished with a Sabin One-Man Truck. Load rolls freely on roller bearings. Exclusive Third-Wheel Feature has real advantages.

WRITE FOR FREE BULLETIN
No. 45



THE SABIN MACHINE CO.
6336 Carnegie Ave.
CLEVELAND 3, OHIO

When inquiring specify CP A3681 — see handy form pages 2-3

NEW LITERATURE

Gyratory Crushers

A new bulletin, (B6004-A) on "Superior-McCulley" gyratory crushers, in addition to many helpful tables and diagrams, contains numerous photographs dramatically illustrating shafts, main frames, top shells, spiders, heads and other parts of the ore crushing units which range in weight from 700 to a million pounds. Described in detail are the oiling system which, according to the bulletin, will cut down outage time and reduce wear; a self-locking suspension device; and various manufacturing processes that turn out the ore crusher. Pertinent facts on manufacturing and shipping procedures are included such as an explanation of how crusher shafts are bored through the center and inspected by periscope to locate flaws as a guarantee of soundness, and the fact that the entire crusher is assembled on a permanent foundation and inspected before the parts are crated piece-by-piece and shipped out on railroad cars. The bulletin, B6004-A, is available on request.

ALLIS CHALMERS, 603, Milwaukee 1, Wis.

When inquiring specify CP A3682
— see handy form pages 2-3

* "Power Factor" Data

"The A B C of Power Factor" a 20 page fact filled booklet explains power factor in detail. Well illustrated and printed in three colors, the various subject headings include: "How is Power Factor related to Various AC loads?", "Power Factor Terms", "Low, Zero, and High Power Factor", "Power Factor Improvement", "Why Is Low Power Factor Detrimental?", "How to Get High Power Factor", "Synchronous Motors", "Where to Use Synchronous Motors", "How to Make Power Factor Calculations", "Methods of Determining Power Factor". Copies on request, as well as information on E-M synchronous motors.

ELECTRIC MACHINERY MFG. CO., Dept. CP, East Minneapolis 13, Minn.

When inquiring specify CP A3683
— see handy form pages 2-3

* Tube Working Tools

A handy tube-working tool selector is one of the features of a new folder on tubing tools recently published concerning tools for use with copper, brass, aluminum, thin-wall steel and similar tubing.

Flaring tools, tube cutters, tube benders, coil makers, pinch-off tools, swaging tools, reamers, refacing tools and soldering equipment are all included. There are also a number of handy tool kits. Copies of this folder, designated as No. 347, may be obtained on request.

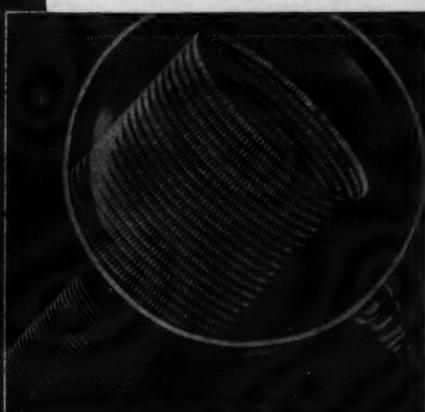
IMPERIAL BRASS MFG. CO., Dept. CP, 1200 W. Harrison St., Chicago 7, Ill.

When inquiring specify CP A3684
— see handy form pages 2-3

P R E V E N T

Rust • Scale • Dirt

FROM CLOGGING
STEAM EQUIPMENT



YARWAY STRAINERS

"The Screen's the Thing"

- A High Grade Monel Woven Wire Basket with mesh fine enough to catch the dirt—yet ample free area for passage of clean condensate, oil and other fluids.
- Body Cadmium Plated Inside and Out for Protection Against Corrosion.
- Readily Removed Steel Blow-Off Bushing.
- Bushing Automatically Aligns Screen.
- Thousands in Use—Sold by Over 100 Mill Supply Houses.
- 6 Sizes $\frac{1}{2}$ " to 2" for Pressures up to 600 Lbs.

See Your Supply House or write for Bulletin S-200

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125 MERMAID AVENUE
PHILADELPHIA 18, PA.

YARWAY STRAINERS

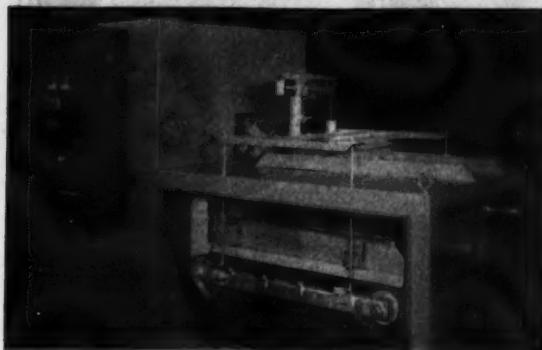
When inquiring specify CP A3685 — see handy form pages 2-3

**Are You Guessing at the
Material Quantities in Your
Continuous Blending
and Mixing Processes?**

SYNTRON

"Weigh-Flow"

WEIGHING FEEDERS



Eliminate Guesswork

provide ACCURATE CONTROL
in the CONTINUOUS FEEDING
of BULK MATERIALS
at a CONSTANT WEIGHT

Smooth out those
"Surges" in your
production chart

Predetermined setting of the
scale automatically maintains
desired weighed flow of ma-
terial per unit of time.



Write us about your problem . . . our Engineering Department will be glad to give you their recommendations.

SYNTRON COMPANY

110 Lexington Ave. Homer City, Pa.

When inquiring specify CP A3686 — see handy form pages 2-3

Page 82

NEW LITERATURE

Electric & Air Operated Mixers

Five models of laboratory mixers are illustrated and described in eight page catalog (Number B-77) and include a choice of electric and air driven types. All four of the models offered are equipped with either a tank clamp or ring stand clamp at no difference in price. The features of the model F suggest it as the most adaptable of all. Adjustable speed by means of friction drive provides increased torque with slow speeds; fully enclosed drive protects sensitive materials from contamination; useful over full range of viscosities; suitable for use in all size containers; degree of agitation instantly adjusted to batch size and results desired. Model L has shaft directly connected to motor and is well adapted to general agitation. Model D is available with universal series wound motor — interchangeable on AC or DC current. It can be equipped with rheostat for speed variation. Model ARL operates on compressed air. It offers full range of speeds from several rpm up to a top speed of 1750 rpm. Copies of this catalog on request.

MIXING EQUIPMENT CO., INC., Dept. CP, 1084 Garson St., Rochester, N. Y.

When inquiring specify CP A3687 — see handy form pages 2-3

*

Holder Permits Filling, Releasing Bag by Foot Lever; Mounts Flush with Floor or On Scale

Single sheet bulletin illustrates and describes bag holders of an exclusive design that are so adaptable that they can be mounted either flush with the floor or on a platform scale. When mounted on a scale they are particularly useful in bagging grain, feed or seed. The bag is quickly filled and released by means of a foot lever, leaving both hands free. The bag is removable from three positions, either left side, right side or front. Height of the jaws is adjustable to length of bag from 27 inches to 40 inches. For bags of less than 27 inches a portable platform can be used. The holder is adjustable for any width bag. The holder is sturdy in construction, all castings being made of aluminum. Shipping weight is approximately 18 pounds. Copies of this illustrated specification sheet on request.

SEEDBORO EQUIPMENT CO., Dept. CP, 223 W. Jackson Blvd., Chicago 6, Ill.

When inquiring specify CP A3688 — see handy form pages 2-3

*

Properties & Specifications of Stainless Steels

A complete 96-page handbook, devotes the first 34 pages to a pictorial review of the importance of stainless steel in various industries, including transportation, architecture, food handling, dairies, chemical processing, textiles, photographing, and paper manufacturing. There is an informative section entitled, "Why Stainless Steel Resists Corrosion." In this unusually complete handbook, at least a page is devoted to each grade of stainless, with appropriate applications of each type. Extensive data on gages, sizes, and tolerances, finishes, and a complete section on processing and fabrication is supplied. One of the most interesting and valuable features of the manual is a 4-page "turn-out" spread giving complete details on properties of stainless steels. There is also an important section on "Corrosion", and a fine selection of general reference tables. Copies are available upon request.

EASTERN STAINLESS STEEL CORP., Dept. CP, Baltimore, Md.

When inquiring specify CP A3689 — see handy form pages 2-3

Unusual VACUUM Set-up —

In manufacturing penicillin, the Upjohn Company, Kalamazoo, Mich., uses a triple vacuum set-up, employing Elliott steam jet ejectors in one three-stage and two four-stage units. Staggered operation of the manifolds gives a quick initial evacuation to about 4 mm absolute, a 36-hr. run at 750 to 575 microns, and a 12-hr. run at 225-250 microns.

This set-up exemplifies the broad flexibility of Elliott ejectors for vacuum requirements, and the experience of Elliott engineers in their application. This experience may be a vital aid in meeting your vacuum problem.

Tell us your vacuum requirements with an Elliott engineer. You may be surprised at the ease with which an ejector system can be provided to pull the vacuum you want. Ejector bulletin on request.



G-309

ELLIOTT

VACUUM EQUIPMENT and APPLICATION ENGINEERING

ELLIOTT COMPANY
HEAT TRANSFER DEPT., JEANNETTE, PA.
Plants in Jeannette, Pa., Ridgway, Pa., Springfield, O., Newark, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

When inquiring specify CP A3690 — see handy form pages 2-3

Free Book on Processing Ovens and Systems

"Blue print for Industry — Part II" contains drawings of many modern oven installations within 1000° F. range

This unusual 18-page booklet shows the construction and function of automatic oven systems for a wide variety of uses, ranging from heat treating and metal finishing to fabric processing and the lacquering of insulated wire and cable.



It describes a portion of the IOE line of high-production convection heated ovens for batch and continuous heating processes, which are used in the chemical, rubber, plastic and synthetic, textile, wire and metal working industries. These ovens, with self-contained automatic materials-handling equipment, have revolutionized conceptions of processing speed, economy and quality during the past few years.

The last two pages of the book provide useful engineering data, including the density, weight and volume of gases, the specific heat and density of various materials, the volume and weight of air, and various fan law problems.

THE INDUSTRIAL OVEN ENGINEERING CO.
Dept. CP, 11621 Detroit Ave., Cleveland 2, Ohio

When inquiring specify CP A3691 — see handy form pages 2-3

CHEMICAL PREVIEW

**AIRETOOL'S
NEW FORM CUTTERS**

Prevents Tube Cleaner Tracking
Stops Tube Damage

The operator of Airetool Tube Cleaners need have no fear of cleaner damaging tubes. That is because the NEW FORM CUTTERS, used in Airetool Tube Cleaners, eliminate the tendency of the cutter to track. The periphery of the cutter is milled to divide sections of the circumference in teeth of various pitch, which prevents the cutters finding same spot in a tube wall during each revolution — an exclusive Airetool development.

Other Airetool Tube Cleaner features are: A 25% more powerful motor made possible by the Airetool Balanced Rotor and Power Seal, precision construction of finest alloy steels, ease of operation. Made for tubes $\frac{1}{2}$ " to 24" I.D.; straight or curved.

AIRETOOL TUBE EXPANDERS

Airetool Tube Expanders are precision tools, made to efficiently and thoroughly perform any tube rolling operation. They are precision built of heat treated alloy steel, with a maximum amount of torsional strength provided in the mandrel to resist the extreme twisting action and another special alloy steel in the roll to resist compression during the rolling operation. Made for tubes $\frac{1}{2}$ " to 12" I.D.; straight or curved.

Airetool offers a complete line of equipment for tube maintenance including tube jigs, gauges and calipers.

WRITE FOR COMPLETE INFORMATION AND HELPFUL BULLETINS.
500 Airetool & Yost-Superior Factory Bldgs.
SPRINGFIELD, OHIO

AIRETOOL MANUFACTURING COMPANY

When inquiring specify CP A3692 — see handy form pages 2-3

Note to Profit-Minded Chemical Processors



Send For Free Catalog Today!

Write Dept. E

SECO

SCREEN EQUIPMENT CO., INC.
9 Lafayette Ave.
Buffalo 13, N.Y.

When inquiring specify CP A3693 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

NEW LITERATURE

Pressure Units for Handling Sealing and Lubricating Oils

Detailed specification tables, blue print drawings and diagrams provide a complete and practical presentation of features and operation of pressure unit for circulating lubricating oil at uniform pressures. Both motor driven and turbine types are available. This equipment meets the need for complete and compact for circulating sealing and lubricating oil through stuffing boxes sealed by means such as the maker's seals at uniform pressure greater than the fluid pressure within the pump or vessel. They are also adaptable for supplying lubricating oil through lantern glands of stuffing boxes packed with conventional packing. These units will also handle such fluids as soluble oil emulsions, fuel oil, kerosene, gasoline and naphtha. Cooling system located in storage tank provides for uniform temperature and uniform viscosity of the oil. Tested and dependable positive pressure pump circulates the oil. Pressure regulator is of manual type and provides circulation at uniform pressures up to 1000 lbs. Complete standard unit.

DURAMETALLIC CORP., Dept. CP, Kalamazoo, Mich.

When inquiring specify CP A3694
— see handy form pages 2-3

*

Gas Welding & Cutting Supplies & Accessories

A price list and catalog of gas welding and cutting supplies and accessories, a 16-page booklet contains illustrations, descriptions, engineering data, and current prices.

Types of equipment covered include: welding rods, brazing and welding flux, hose, brazing alloys, goggles and spectacles, gloves for gas welding and cutting, and sparklighters and tips. Also listed are: carbon rods and plates, hardfacing rods, cobalt borium inserts, pea borium, and other items.

Information concerning properties and uses accompanies each article listed. Wherever possible, precise quantitative data are supplied. Numerous photographs and sketches supplement the text. Ordering is facilitated by the listing of sizes and stock numbers in easily-read columns. Complete directions for ordering are included.

The booklet also lists the addresses of company offices throughout the country from which these gas welding and cutting supplies can be supplied promptly. Copies of Catalog 40 on request.

AIR REDUCTION, Dept. CP, 60 E. 42nd St., New York 17, N.Y.

When inquiring specify CP A3695
— see handy form pages 2-3



of PARTS and SUPERSTRUCTURES gives You THESE ADVANTAGES

- Reliable and immediate replacement of any worn part without additional machine or tool work
- Original accuracy of regulation can be restored by parts that are perfectly interchangeable
- Number of necessary stock repair parts required for emergency protection cut to minimum
- Possibility of costly equipment shutdowns are decreased by using top quality regulators

All Internal Parts are Made to Standard Interchangeable Dimensions

Controlling valves and controlling valve seats are interchangeable in all classes of LESLIE Internal Pilot operated Regulators for steam service in all sizes, $\frac{1}{2}$ " to 4". Main valves, main valve springs, seat rings and cylinder liners are interchangeable in all LESLIE Bronze Internal Pilot operated Regulators of the same size, or in all LESLIE Steel Internal Pilot operated Regulators of the same size.

The superstructures shown above are all interchangeable on the standard LESLIE body. Therefore, it is a simple matter to convert a LESLIE Reducing Valve to a LESLIE Pump Governor or a LESLIE Temperature Regulator of the same size, thus effecting a considerable saving over

the cost of a new complete regulator.

Industrial plants, ships, railroads and other users who have standardized on LESLIE Regulators are able to maintain a minimum replacement part stock because of these important interchangeability features. In this way, they effect considerable savings annually.

Intimate knowledge of, and experience with, one standardized line of control equipment enables operators and mechanical men to perform their jobs more quickly and efficiently. Standardizing on LESLIE Control Equipment in your plant is sure to reduce your production costs.

SEND FOR your copy of
LESLIE Catalog of Engineering Data

LESLIE CO.

281 Grant Avenue • Lyndhurst, N.J.

Look for "LESLIE Regulators" in your classified telephone directory
in these cities, for LESLIE factory-trained engineers to help you
with your regulation problems

Baltimore, Md.	Kansas City, Mo.	Richmond, Va.
Boston, Mass.	Los Angeles, Cal.	Rochester, N. Y.
Bridgeport, Conn.	Louisville, Ky.	Rutherford, N. J.
Chicago, Ill.	Milwaukee, Wis.	Savannah, Ga.
Cleveland, Ohio	Montreal, Que., Can.	Seattle, Wash.
Detroit, Mich.	New Orleans, La.	St. Louis, Mo.
Fremont, Neb.	New York, N. Y.	Syracuse, N. Y.
Houston, Tex.	Philadelphia, Pa.	Troy, N. Y.
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	Providence, R. I.	Youngstown, Ohio

ESTABLISHED 1900
LESLIE
CO.

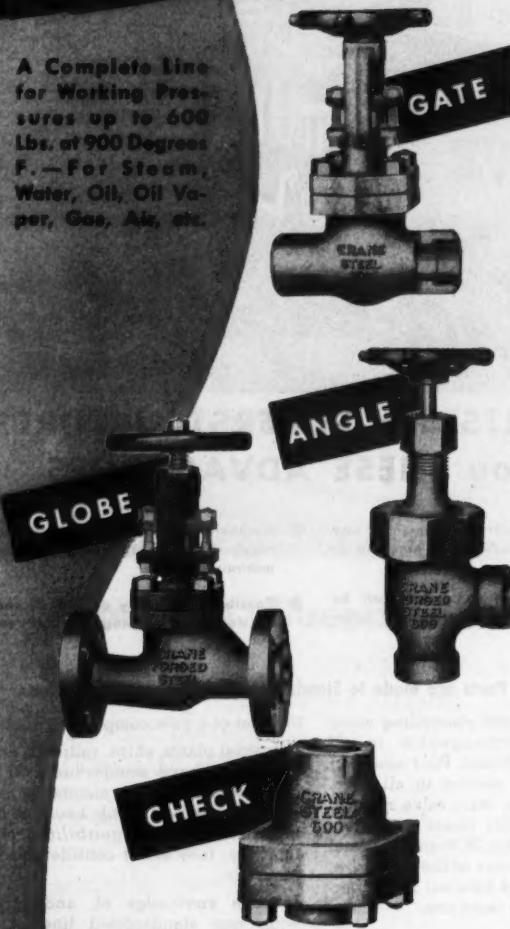
PRESSURE REDUCING VALVES • PUMP GOVERNORS • PRESSURE CONTROLLERS
TEMPERATURE REGULATORS • SELF CLEANING STRAINERS • LESLIE-TYFON WHISTLES

When inquiring specify CP A3696 — see handy form pages 2-3

Page 83

**Big Valve Design
In Small Steel Valves
Sizes $\frac{1}{4}$ to 2 in.**

A Complete Line
for Working Pres-
sures up to 600
Lbs. at 900 Degrees
F.—For Steam,
Water, Oil, Oil Va-
pors, Gas, Air, etc.



SEND FOR FOLDER NO. 1585

Shows the wide range of sizes
and patterns in this quality line;
also the fine construction details
that keep these valves working
at peak efficiency so much longer.
Your copy sent on request.

CRANE CO., 836 S. Michigan Ave., Chicago 3, Illinois
Branches and Wholesalers Serving All Industrial Areas

For anything in Piping Materials, Call CRANE!

CRANE
VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

When inquiring specify CP A3697 — see handy form pages 2-3

Page 84

Equipment for Production

Glass Pipe Easily Assembled to Provide Corrosion-Proof System

*Visibility, easy cleaning are features; sizes
1, 1½, 2, 3 and 4 inch i.d.*

Uses — To provide the utmost cleanliness and corrosion-proof service essential in the wide variety of piping installations encountered in chemical processing industries. Typical of the materials handled by a great number of present installations are: hydrochloric acid, nitric acid, wet chlorine, brine, organic acids, bromine, pharmaceuticals.

Features — In many applications the transparency is considered an invaluable operating asset, every foot of pipe being open to inspection at all times. The fresh, clean appearance is an incentive to cleanliness. Smooth, hard surface contributes to easy cleaning, easily performed by flushing hot water through the line. There are no rough edges or deep crevices to hold dirt or scale. High resistance to food acids and brines. Products are protected and replacements due to corrosion are eliminated. Pipe is durable and together with flanges, inserts, etc. easily assembled into a sturdy system.

Description — Pyrex glass pipe is now available in 1, 1½, 2, 3, and 4 inch inside diameter. It is easily installed; no special tools or special training required. The pipe, fittings and hardware come to the installation point ready for assembly. No cutting to length, threading is necessary on the job. A complete line of standard fittings — ell, tees, bends, reducers, etc. — is available. Costs are comparable or even less than brass or copper in equal sizes. 400 degrees F. can even be considered. Most installations operate at pressures of 50 psi but pressures of 100 psi can be considered. Additional information concerning Pyrex pipe as it applies to individual requirements on request.

CORNING GLASS WORKS, Dept. CP, Corning, N. Y.

When inquiring specify CP A3698 — see handy form pages 2-3



Glass pipe in corrosion-proof service

Description — The new mountings, known as Vibro-Levelers and manufactured in nine sizes ranging in load capacities of from 10 lbs. to 2,000 lbs. each, are for use on such noise and vibration producing equipment as punch presses, compressors, blowers, forging hammers, grinders, buffers, etc. Designed to be installed quickly with no floor cutting or fitting, they are for use on either new or existing equipment. Brackets, available in various capacities, permit installation of the mountings without materially raising the elevation of the machine. Being of synthetic rubber, the insulating material employed is not liable to attack by oils or greases and thus can be used under virtually any conditions. The new mountings are simple in design and construction, are fool-proof and once installed require no oiling, greasing, or other maintenance attention. The synthetic rubber insulating material separates an outer shell, which also forms the base of the mounting, from an inner cylindrical member, to which is fastened a single stud.

Leveling is by means of two nuts supplied with each mounting; one nut is for adjusting the machine to the exact level desired; the other, for locking in the leveled position. Although available in sets of four, the machinery mountings can be used in any number required for various machines; thus machinery of virtually any size or weight can be insulated and leveled. When used to support new equipment where the operating height is not important, the mountings are usually placed immediately under the base of machine. Where the machinery is already installed and the height must be maintained at ap-

EQUIPMENT SHORTAGES

leave but 1 answer . . . ORDER EARLY

- AGITATORS
- BATCH MILLS
- CLARIFIERS
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- CONICAL BALL MILLS
- CONICAL PEBBLE MILLS
- CONVEYORS
- COOLERS
- DIGESTERS
- ELECTRIC EAR
- FEEDERS
- ROD MILLS
- RUGGLES-COLES DRYERS
- SAND FILTERS
- SLURRY MIXERS
- THERMOMILLS
- THICKENERS
- TUBE MILLS

Hardinge factories are working at top speed to meet demands for our products. Our policy is first come, first served . . . so act promptly. Estimate your needs now, and avoid disappointment later.

HARDINGE

COMPANY, INCORPORATED • YORK, PENN.
NEW YORK 17—120 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6
SAN FRANCISCO 5—501 Howard St. • 200 Bay St.—TORONTO 1

When inquiring specify CP A3699 — see handy form pages 2-3

CHEMICAL PREVIEW

PRODUCTION

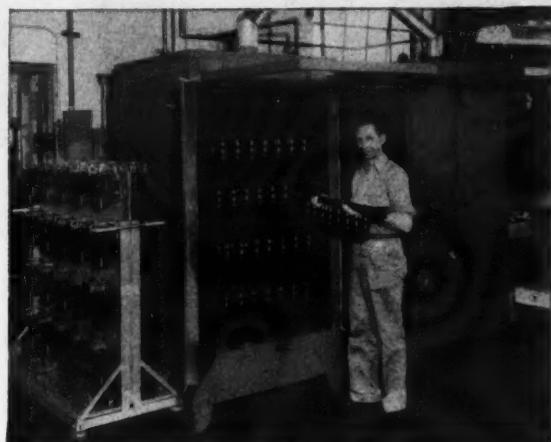
proximately the same level, a series of standard brackets are available so that the mountings can be installed without even cutting the floor. Standard brackets are of two types: Zee and angle. The zee brackets are for attaching to the existing hold-down bolt holes in the base of the machine and require no cutting or welding to attach to the machine. The angle brackets are for mounting to the side of the machine base with either bolts or by arc welding.

BUSHINGS, INC., Dept. CP, Coolidge Highway at 14 Mill Rd., Royal Oak, Mich.

When inquiring specify CP A3700 — see handy form pages 2-3

Ovens for Baking, Drying Feature Rapid, Full Capacity Loading

Self-contained; require only gas, electric source



Oven with loading dolly and shelf arrangement

Uses — These ovens are now successfully in use on radio and also radar, coil and armature drying and baking, carbon embrittlement and aluminum aging, baking a variety of synthetic finishes, Japans, varnishes, lacquers, enamels, and many kinds of dehydrating and aging operations. A number of these units are now in service in foundries for baking cores and molds and in process plants for chemical drying.

Features — An advanced design of loading dolly and shelf arrangement permits easy loading and maximum use. Upright position also means easier loading plus savings in floor space. Automatic controls and quick starting make it very easy to adapt the oven from one operation to another. Other features that contribute greatly to efficiency are the high volume air flow; positive air intake and controlled volatile exhaust.

Description — These ovens are available in sizes from 2 x 2 x 3 feet to 4½ x 6 x 9 feet and are adaptable to all drying processes up to 500 degrees F. They are self-contained and require only lead-in or gas or electricity for complete installation. The loading dolly provided makes it possible to load the oven to capacity and its utility is emphasized in the manner in which various sized armatures are handled. Descriptive bulletin is available.

DESPATCH OVEN CO., Dept. CP, 619 S.E. 8th St., Minneapolis, Minn.

When inquiring specify CP A3701 — see handy form pages 2-3



THE MARLEY CO., INC. • KANSAS CITY 15, KANSAS

Now, More Than Ever..
**No. 1 Man in
COOLING TOWERS**

MARLEY facilities at Kansas City and Stockton are devoted exclusively to production of water cooling equipment.

MARLEY tower selection and application benefits in every instance from this specialized engineering and production knowledge.

MARLEY COOLING TOWERS

When inquiring specify CP A3702 . . . see information request blank, pgs. 2-3

PRODUCTION

Solvent Extraction Process Gives Greater Yield of Soybean Oil

Only 1% of oil left in meal which retains higher protein content; hexane solvent used with utmost efficiency in new plant

Uses — Soybean meal and oil for their ever widening range of applications are now in production by means of hexane solvent extraction method in the plant pictured here. Most familiar among food processing uses of the oil are those in connection with shortening, flour, margarine, salad dressings, sauces and in feeds for animals and poultry.

Features — The outstanding advantages of this new method are the greater yield of oil and the greatly increased protein content of the meal. Less than 1% of the oil is left in the meal. While this extraction process was originated in Europe it has been modernized and brought to maximum usefulness in this country.

Description — The new mill at Decatur, Ill., pictured here is the largest of its kind in the United States, consists of two principal buildings. Soybeans are cracked and flaked into uniform particles in one building and then carried by conveyor belt over a long bridge to the second building. There they are emptied into baskets in an elevator. The baskets have perforated bottoms, and the solvent (introduced at the top of the tower) drops from one basket to the next. The oil laden solvent is drained from the bottom of the elevator and the oil free flakes are carried away for removal of the solvent by drying and steaming. The flakes are cooked, toasted, ground and sifted to produce meal of uniform color and size. The soybean oil is then pumped to a tank farm for refining or shipping as crude oil. Of interest in connection with the operation of the



Largest extraction type soybean plant in U.S.

great plant is the fact that steam used in the operations is carried to it from a mile distant boiler house via a 10 inch line, (visible in the picture) which is flanked by a 4 inch condenser return line. Close examination of this picture will reveal in the loop over the drive way the 2 inch line carrying crude soybean oil from the extraction mill to the refinery.

Due to the fact that the solvent used is inflammable, it is necessary that the extraction building itself be located at some distance from anything that will produce sparks — railroads, and manufacturing processes involving boilers, etc. Typical of the many operations included in the com-

A NEW DESIGN OF PUMPS THAT MAINTAIN VOLUMETRIC EFFICIENCY LONGER.

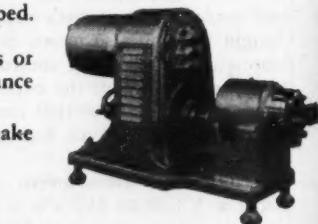
Modern Pumps

THAT EMBODY MANY NEW FEATURES AND WHICH OVERCOME USERS' OBJECTIONS TO CONVENTIONAL DESIGNS.



A. C. MODEL
The Commander

M-100 MODEL
The Victor



Literature on request

IF YOU WANT TO GET RID OF PUMP TROUBLES
GET THE **FLOW-MASTER** AND YOU'LL GET SATISFACTION

MARCO CO. Inc., Third and Church Sts., Wilmington 50, Del.

Established 1936

When inquiring specify CP A3703 . . . see information request blank, pgs. 2-3

CHEMICAL PREVIEW

All
Is
It is
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prod
It is
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PRODUCTION

WHAT IS Homogenization?

To homogenize is to put compatible or incompatible components in a liquid media into stable suspension.

To suspend and stabilize solids in a colloidal substance so that they will remain fixed, neither rising if they are lighter than the vehicle, nor settling if they are heavier, or

To reduce oils or fats in a water vehicle to minute globules and to so disperse them that they form emulsions free from stratification, or

To suspend pigments, minerals, or the like in a vehicle.

These several actions are accomplished in the FLOW-MASTER process by reducing all elements to minute subdivision by a series of actions, and then thoroughly coating all surfaces with the vehicle. This enables them to defy the law of gravity although the solids may be heavier than the vehicle.



All of These Definitions Are Based on What The FLOW-MASTER Is Doing Throughout Industry Today

It is processing products that were thought impossible to homogenize and producing entirely new products in some cases.

It is increasing the shelf life in others — cutting processing costs — improving quality and appearance and putting compatible and incompatible materials into perfect homogeneous compounds.

These accomplishments are possible because

THE FLOW-MASTER

works on an entirely new and more scientific principle. It not only homogenizes but it blends — tex-

turizes — emulsifies — stabilizes — grinds under steady, hydraulic pressure and also bleaches some products where necessary.

These results are accomplished, not by pressure alone, but on a series of actions as the product passes from entrance to exit and under temperature control if desirable. Each successive action brings the product one step nearer perfection until the desired result is achieved.



MARCO CO. Inc., Third and Church Sts., Wilmington 50, Del.

Established 1936

When inquiring specify CP A3704 . . . see information request blank, pgs. 2-3

JANUARY - FEBRUARY, 1946

plete process are those performed by jacketed vessels. These vessels receive flaked soybeans saturated with solvent as they are discharged from extraction towers. In these vessels they pass down through a series of close conveyors. The vessel units are steam jacketed and the heat from the steam in this operation evaporates the solvent which is recovered by means of condensers. Finally, the final traces of solvent in the flakes are removed by blowing live steam through them. The bearings of these paddle-type conveyors are lubricated by means of a centralized system and the worker to be seen in the cover picture is applying the required lubricant. Complete information on soybean oil and meal and their many applications on request.

A. E. STALEY MFG. CO., Dept. CP, Decatur, Ill.

When inquiring specify CP A3705 — see handy form pages 2-3

Grinder Has Wheel Head Mounted On Two Different Compounds

For difficult internal taper grinds, turns

Uses — This multi-purpose grinder features a design which permits the most difficult of internal or external taper grinds or turns to be easily and accurately performed.

Features — Model ACX now has the wheel head mounted on two different compounds, each graduated to 180 degrees. Workhead can be moved 6 inches towards or away from the work by simply removing and replacing just four screws. By so doing the swing can be increased from 18 inches to 30 inches, greatly increasing the number of jobs which this machine can do.

Description — The device has both hand and power cross feeds, a work length capacity up to 8 inches and two reversible spindle speeds of 80 and 130 rpm. Chucks are quickly and easily mounted on the face plate by a draw bar which extends through the spindle. Wheel head has a two HP motor with ball bearing spindle and speeds of 6000 and 12,000 rpm. A retractable tool holder bar enables finished grinding to follow turning operations without removing the cutter. The power cross-feed can be set to any desired length by dogs on the side of the carriage. Longitudinal feed is controlled by a quickly interchangeable screw or rack and pinion. An automatic sizing device insures exact duplication of successive pieces on production runs.

LEMPCO PRODUCTS CO., Dept. CP, Bedford, Ohio.

When inquiring specify CP A3706 — see handy form pages 2-3

Handbook and Catalog on pH, Chlorine Control Lists, Pictures 8 New Sets

The seventh and completely revised edition of "Modern pH and Chlorine Control," contains both simple and technical explanations of pH control; specific discussions of the applications of pH, chlorine and phosphate control to 35 industries; the precautions to be observed in making determinations; and descriptions of all outfits produced by this organization, including eight new sets. Copies on request.

W. A. TAYLOR & CO., Dept. CP, 7300 York Road, Baltimore 4, Md.

When inquiring specify CP A3707 — see handy form pages 2-3

JESSOP

Stainless-Clad^{*}
Steel
is a
VERSATILE
METAL

80 foot tower fabricated from Jessop Stainless-Clad Steel by Alco Products Div. of American Locomotive Co. for Celanese Corp. of America.

By using Jessop Stainless-Clad Steel in this 80 ft. tower it was possible to maintain a uniform thickness of stainless surface throughout . . . even though the total gauge of steel in the different sections varies according to the structural requirements. For Jessop Stainless-Clad Steel is available in controlled percentages of cladding from 10% to 50% down to $\frac{1}{8}$ " gauge and 5% to 50% down to $\frac{3}{16}$ " gauge.

By combining the properties of a stainless surface with a mild steel backing, Jessop Stainless-Clad Steel provides an economical approach to the design of equipment in which corrosion is a major problem but where the use of solid stainless is not feasible. Write for information regarding its use in your application.

*Manufactured under U. S. Pat. Nos. 1,997,538; 2,044,742; 2,147,407 and 2,225,868. Canada Pat. No. 363,153.

JESSOP STEEL CO.
WASHINGTON, PENNA.

When inquiring specify CP A3708 — see handy form pages 2-3

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PRODUCTION

Report on Wartime Development and Performance of Vs-Solid Fibre Boxes

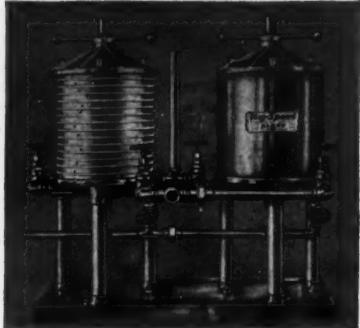
An attractive illustrated booklet — 8½ x 11½ inches, is devoted to an interesting report pertaining to the wartime development and performance record made by Vs-Solid Fibre Boxes. These boxes created during the war are now available for the first time to private industry. In the introduction the booklet discusses and emphasizes the great variety of extremely difficult conditions imposed on boxes used for shipments to the armed forces. The three different grades in which these solid fibre V-boxes are made are described. These are identified as V1s, V2s and V3s. The first is for the most rugged service and is for the hardest kind of service where strength is most important as in the case of shipping 10 in 1 rations. V2s embodying a slightly smaller quantity of the stronger fibres, are used for the greatest range of shipments; V3s meet the requirements where a still lighter box will be adequate. The fibres in these boxes are specially treated. The boxes themselves are made from a number of plies of paperboard laminated together with a waterproof adhesive. For the most part the adhesives consist of special grades of starch combined with urea formaldehyde resins. These adhesives, in addition to being able to retain their bond under total submersion in water, also serve to reduce penetration of water through the walls of the box. A very considerable advance in preventing water and moisture migration through the board was achieved with the introduction of asphalt barriers. These were applied in the form of duplex sheets, laminated with asphalt used for the outerfacings of the board. The various illustrated



The material pumped — no matter how abrasive, corrosive, viscous or heavy — never gets a chance to injure the moving parts and the liquid ends are made of any metal or with any covering to withstand destruction . . . This double acting, reciprocating pump delivers 1 to 100 g.p.m. at pressures to 100 p.s.i. It's the pump for tough materials and low cost operation. See it at Booth 315. — Get Bulletin 112.

T. SHRIVER & COMPANY, Inc.
846 Hamilton St.
Harrison, N. J.

When inquiring specify CP A3710 — see handy form pages 2-3



ALSOP "Hy-Speed" FILTERS

"SEALED DISC" for Chemicals and Water

"DISC-PAK" for All Kinds of Oil

"Hy-Speed" is well-termed because the design of ALSOP filtering elements is such as to provide an extra large filtering surface with "graded" fiber masses. High capacity results. "Blinding" does not occur.

Write for descriptive literature of the broad application of ALSOP Hy-Speed FILTERS. Describe in detail the solution to be filtered to help us in making recommendations.

ALSOP ENGINEERING CORP.
101 Alsop Square, MILLDALE, CONN.
1-AL-4

When inquiring specify CP A3709 — see handy form pages 2-3

STAINLESS STEEL CASTINGS

Are you using stainless steel forgings or fabricated parts which might conceivably be cast—with consequent savings in cost, man-hours and delivery time? If so, the chances are we can help you.

Using either the static or centrifugal method—which ever is better for a particular job—we are able to produce many parts previously considered impossible to cast.

Write for complete information. Tell us what your problem is and give us a chance to help you solve it.

THE Cooper ALLOY FOUNDRY CO.
150 BLOY STREET • HILLSIDE, NEW JERSEY

When inquiring specify CP A3711 — see handy form pages 2-3

CHEMICAL PREVIEW

PRODUCTION

sections in the booklet deal with such subjects as: Testing methods in which the group of box makers cooperated. These included ply separation test after sample had been submerged in water; dry and mullen tests, special performance tests and retention of material tests, as well as drum tumbling tests. The results of all these tests and other pertinent data is tabulated. A limited quantity of these booklets is available.

WEATHERPROOF SOLID FIBRE BOX GROUP, Dept. CP,
7351-11th St., N.W., Washington, D.C.

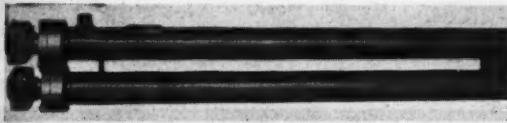
When inquiring specify CP A3712 — see handy form pages 2-3

Electrical Heat Exchanger

Uses resistors — 4 K.W. to linear foot of tube

Uses — This new heat exchanger, utilizing electrical resistors as a heat source is advantageously employed where steam is not available, — when it is desired to eliminate the auxiliary piping required when steam is used, — or to heat the fluid to higher temperatures than can be reached with steam. In addition to commercial applications they are serviceable in many laboratory and pilot plant services as well.

Features — Notwithstanding high rating on the interior of fintube, the rating on the outside surface (due to the



Exchanger uses resistors as heat source

large ratio of exterior to interior area of the fintube) is only about 8 watts per square inch, thus avoiding high skin temperatures that might cause carbonization of heat sensitive materials, such as sugar syrups and molasses, or coking of hydrocarbons, petroleum products or organic oils. Temperatures are easily controlled.

Description — The electrical resistors are encased in a length of the maker's standard "Brownweld" fintube. Current density of typical resistors now in use is 4 K.W. per linear foot of fintube. These fintubes as fitted with electrical resistors are thoroughly practical for use in double tube, bayonet, vertical immersion or other types of heat exchangers. They permit great flexibility as to size and capacity of equipment. Each installation is engineered to the individual, specific duty. The units provide the most thorough absorption of heat into the fluid being treated.

BROWN FINTUBE CO., Dept. CP, Elyria, Ohio.

When inquiring specify CP A3713 — see handy form pages 2-3

*

Oil Field Chains and Pumps

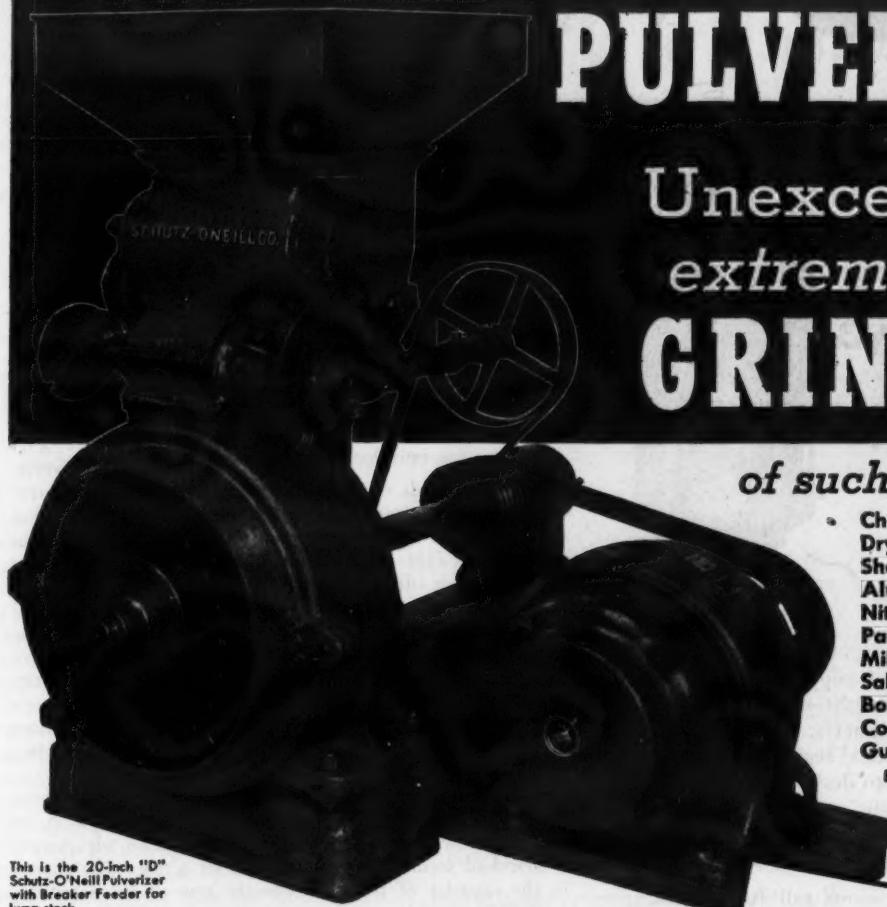
Practical tips on the care of oil field chain are given in a twelve page booklet which also illustrates and describes the various chains offered in this complete line. Features of construction and design are emphasized and specifications conveniently tabulated. The latter portion of the bulletin pictures and gives data on pumps especially suited for utility oil field service. Copies of bulletin 455 on request.

CHAIN BELT CO., Dept. CP, Milwaukee 4, Wis.

When inquiring specify CP A3714 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

The SCHUTZ-O'NEILL PULVERIZER



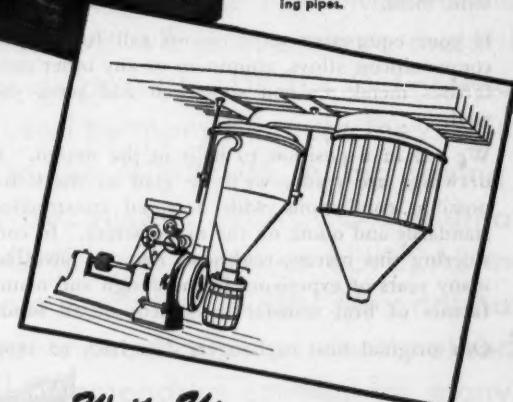
This is the 20-Inch "D"
Schutz-O'Neill Pulverizer
with Breaker Feeder for
lump stock.

Unexcelled for
extremely fine
GRINDING

of such materials as

- Chemical Crystals
- Dry Colors
- Shellac
- Alum
- Nitrate of Soda
- Paris Green
- Milk Powder
- Salt peter
- Borax
- Composition Stock
- Gums, Glues or any dry,
non-gritty stock

MILL PLAN No. 30 (below) shows a
popular set-up for a 20-Inch "D"
Pulverizer with Finished Product Bin,
Tubular Dust Collector and connecting
pipes.



A centrifugal air force impact pulverizer for continuous or batch operation

The Schutz-O'Neill Pulverizer embodies in its design, construction and performance *more than a half-century* of successful grinding and pulverizing experience. For extremely fine grinding and uniformity, the principle of centrifugal impact when carried by the air stream has never been surpassed. The product is floated off on air—there is no screen to clog or wear out.

**Thousands of Schutz-O'Neill Pulverizers have been
in constant service for 10, 20, 30 years or more**

The best guarantee of what a Schutz-O'Neill Pulverizer will do for you is what it has done for others, year after year in many thousands of installations. The machine has proven its sturdiness, long life, low power consumption, high output and ease of operation. With a range of sizes in several styles, any dry, grindable stock can be efficiently pulverized.

SCHUTZ-O'NEILL COMPANY
ESTABLISHED IN 1893

303 SIXTH AVENUE SOUTH • MINNEAPOLIS 15, MINNESOTA

Write Us . . .

Tell us your requirements, products to be pulverized, output desired, and send a sample. This in no way obligates you. Literature sent on request.

**DIVISION OF
PARTEN MACHINERY COMPANY**

When inquiring specify CP A3715 . . . see information request blank, pgs. 2-3

PATTERSON-KELLEY
Heat Exchangers
AND
Process Equipment

Skilled in
the Red
and White
Metals



COPPER, aluminum, and copper-silicon alloy are represented in these three Patterson-Kelley process units. Our engineers, thoroughly familiar with the ferrous metals, also know the red and white metals and how to design equipment to make the best use of their respective qualities. Our shopmen are well-experienced in working with them.

If your equipment requirements call for copper, copper-silicon alloys, aluminum or any other non-ferrous metal, we can serve you and serve you well.

We are in a position to help in the design. If drawings are ready, we'll be glad to check for possible conflicts with accepted construction standards and quote on the manufacture. In considering this matter, remember that we have had many years of experience in the design and manufacture of heat transfer equipment of all kinds.

Our original heat exchangers date back to 1880.



THE PATTERSON-KELLEY Company, Inc.

EAST STROUDSBURG, PA.

BOSTON 16, 96-A Huntington Avenue • NEW YORK 17, 101 Park Avenue
PHILADELPHIA 3, 1700 Walnut Street • CHICAGO 4, Railway Exchange Building

Representatives in All Principal Cities

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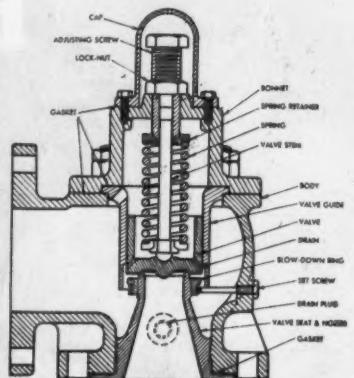
When inquiring specify CP A3716 — see handy form pages 2-3

Page 90

PRODUCTION

Pressure Relief Valve For Gases, Liquids; Minimum Blow Down

Simple, rugged construction; parts easily accessible



Valve has extra long nozzle

The loose threads on the nozzle, and the ample reinforcement on the lower neck, minimize distortion, warping resulting from temperature changes, and other misalignments that might have an unfavorable effect upon proper seating. High lift and high flow capacity are designed and built permanently into the valve, and the spring is well protected against failures resulting from corrosion. The nozzle is extra long thus bringing the valve seat well above the lower part of the discharge area. Consequently friction losses are extremely low when discharging vapors — and — being of top guided construction, the valve does not experience the coking and sticking encountered when valves are guided from below.

Description — Extensive laboratory and field tests have proven that these valves have minimum blow-down. After the blow-down ring has been set in the desired adjustment, it is locked securely in place with a set screw. No change in the capacity of the valve, or the size of the secondary orifice is possible, until the screw is retracted, and the blow-down ring readjusted. All working parts are easily accessible, simply by removing the cap and bonnet, simplifying inspection and maintenance. Provision is made for gagging, and the valves can be provided with a lifting mechanism if desired. Furnished with iron or steel bodies, with either bronze or stainless steel trim. 2" x 3", 3" x 4", 4" x 6" and 6" x 8" sizes are standard. Other sizes on special order.

THE JOHNSTON & JENNINGS CO., Dept. CP, 877 Addison Road, Cleveland 14, Ohio.

When inquiring specify CP A3717 — see handy form pages 2-3

*

Thermostats & Pressure Switches

Condensed catalog and price sheet conveniently arranged for quick reference covers a wide selection of thermostats: — units with remote bulb; pilot light (Type K) — immersion thermostats, rigid mounting—for liquids not injurious to brass (Type I). Liquid immersion thermostat (Type T) and available with extras — bulb and IPT connector for uses injurious to brass. Also, there are pages on pressure and vacuum switches.

UNITED ELECTRIC CONTROLS CO., Dept. CP, 69 A St., Boston 27, Mass.

When inquiring specify CP A3718 — see handy form pages 2-3

ALOYCO-20 VALVES MAKE ACID HANDLING EASIER



* The wide variety of Aloyco-20 Stainless Steel Valves enables prominent Sulfuric Acid Manufacturers to achieve piping freedom. They also reduce repairs through proper valve application. Since Aloyco-20 resists Sulfuric over a broad temperature and concentration range, they can standardize on one alloy, thereby lowering inventories. Aloyco-20 can also help you.

Send For Data

Sheet AS 20-1 gives metallurgical, mechanical and chemical data covering Aloyco-20. Shows valves in cross-section, dimensions, etc. Write for it.

ALOYCO

Stainless Steel
VALVES and FITTINGS

ALLOY STEEL PRODUCTS COMPANY, INC.
10 WEST ELIZABETH AVENUE — LINDEN, NEW JERSEY

GATE VALVES • GLOBE VALVES
V VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES
SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS

When inquiring specify CP A3719 — see handy form pages 2-3

Meets Your OPERATING CONDITIONS

No. 5422-R

This flexible "general-use" Taber Centrifugal Pump serves especially well in the processing industry. The pump is easily adapted to many jobs because several impellers are available for the same size casing or several size casings for the same yoke.

Oversize ball bearings, extra shaft diameter, deeper stuffing box, conservative rating...and final testing to meet your operating conditions...will keep you sold on this Taber "general-use" Pump.

Please write, on your letter-head, for the helpful TABER BULLETIN CL-339

TABER PUMP CO., 320 Elm St., Buffalo 3, N.Y.
ESTABLISHED 1859

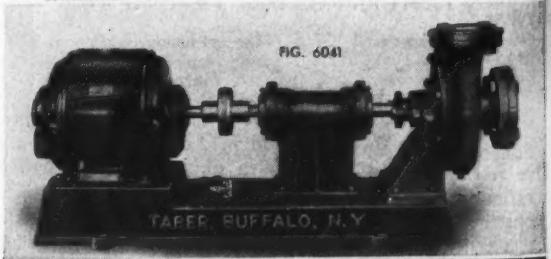


FIG. 6041

TAPER BUFFALO, N.Y.

Taber Pumps for Higher Practical Performance

When inquiring specify CP A3720 — see handy form pages 2-3

CHEMICAL PREVIEW



MANY
INDUSTRIAL
ROLL
PROBLEMS
are solved
by using

"SHAF-TITE" ROLLS

Many patented constructions provide strongest possible shaft setting. Your choice of many different types and materials—wood, rubber, iron, brass, stainless steel, plastic, etc. Whatever your roll problem, put it up to

RODNEY HUNT

SEND FOR CATALOG TODAY!
RODNEY HUNT MACHINE CO.
273 Maple Street, Orange, Mass.

When inquiring specify CP A3721—see handy form pages 2-3

If you are using Porous Mediums...



If you are using Porous Mediums for commercial or laboratory processes, you may wish to obtain a copy of this helpful and informative booklet on the specifications and applications of Norton Porous Mediums for filtration, aeration and gas diffusion. For data on these uniformly porous, acid-proof gas diffusing or filter mediums of great strength and accurately controlled physical structure write for Catalog No. 140 to:

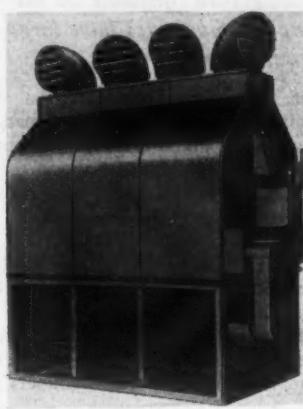
NORTON COMPANY — Worcester 6, Mass.

When inquiring specify CP A3722—see handy form pages 2-3

PRODUCTION

Direct Fired Heaters

Have automatic thermostatically controlled humidification



Heaters in sizes for 75,000 to 2,000,000 B.T.U. output per hour

Uses — These direct-fired heaters are for commercial and industrial applications providing a range in capacities of 75,000 to 2,000,000 B.T.U. output per hour.

Features — Among numerous innovations are: shipment of heaters in two sections permitting unloading and placing without heavy crane facilities.

Description — The units are made entirely of steel and are completely self-contained; equipped with fully automatic control systems. They are applicable to a wide variety of installations either for air distribution direct through rotatable diffusers or through ducts. Filters may be applied without special transformations requiring additional floor space. Lower resistance through heater provides quieter fan operation and lower motor horsepower. Tubes may be cleaned while standing on the floor. Induced draft fan is independent v-belt driven.

HERBERT H. DAVIS CO., Dept. CP,
1616 South 52nd St., Cicero, Ill.

When inquiring specify CP A3723
— see handy form pages 2-3

*

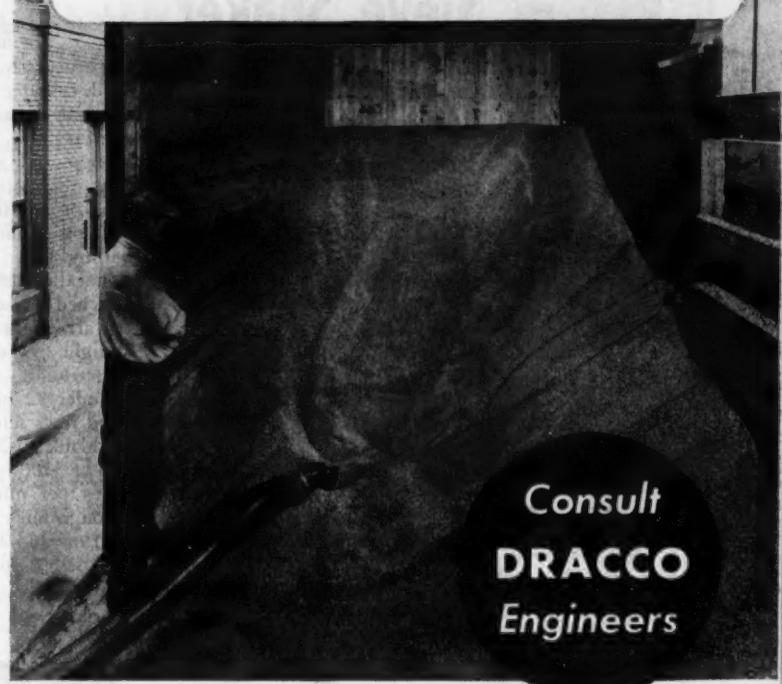
Chart on Alloy Welding

A new and unusual reference chart on high and low alloy welding electrodes includes tables on corrosion resistance, on heat resistance, and on weld metal surfacing, as well as the chemistry of the weld metal. Welding current and voltage tables give information of value to the operator. The chart is 20" x 30" for wall mounting. A copy will be sent upon request.

ARCOS CORP., Dept. CP, 1515 Locust St.,
Philadelphia 2, Pa.

When inquiring specify CP A3724
— see handy form pages 2-3

Why pay **MORE** for moving materials
when Dracco Pneumatic Conveyors
can do it for **LESS**?



Consult
DRACCO
Engineers

Millions of dollars are spent each year moving chemicals, grains and granular materials. To meet postwar competition it will pay to move materials as economically as possible. DRACCO Pneumatic Conveyors are used by many because they reduce handling costs to the MINIMUM. A big saving in labor is made because a DRACCO Pneumatic Conveyor and ONE man replaces SEVERAL men and will also do a much better job. Why not have DRACCO Engineers check your present methods? They have made tremendous savings for many.

For Further Information Write

DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring specify CP A3725—see handy form pages 2-3

NEWARK "End-Shak"

Testing
Sieve Shaker

NEWARK
for ACCURACY

Produces
Mechanically
What You Try To Get Manually

This testing unit meets all Bureau of Standards' recommendations as to test results. Its action simulates the perfect hand shaking movement. Its ruggedness enables it to give many years of trouble-free service.

Here are some of its features:

- * ideal reciprocating and turning motion
- * uniform spreading of sample
- * maximum amount of sieve surface utilized
- * no piling up of sample
- * no bouncing of particles
- * complete rotation of each sieve each minute
- * simple hold-down device capable of handling any number of sieves from 1 to 13

This is the Testing Apparatus you need in your laboratory. Write for further information.

NEWARK WIRE CLOTH COMPANY

336 Verona Avenue

Newark 4, N. J.

1-NWC-4

When inquiring specify CP A3726 — see handy form pages 2-3

Page 92

PRODUCTION

Combination-Knife Hammer for Fibrous, Greasy Materials

Tips are semi-sharp and hard surfaced at the top for self-sharpening; sloping sides have large striking surface

Uses — For fibrous, wet, greasy or gummy materials. This is particularly suitable in instances where the demand is for a cylinder providing a more granular grind and that is efficient in handling tough, stringy materials.

Features — The hammer is round and pulls through stringy, oily or gummy materials with less friction and heat. The tip is semi-sharp and hard surfaced at the top for self-sharpening. The sloping sides have a large striking surface and are sloped to pull in gently without balling up. The knife hammer is reversible and economically replaced. The bodies to which the hammers are attached are so staggered that stringy material is not jerked or carried forward as may be the case with hammers in a straight row or line.

Description — The knife tip is $1\frac{1}{8}$ " across and in an 18" cylinder 32 of them are used which is equivalent to two solid rows across the entire cylinder and feed opening with no blank spaces between hammers or sides of the grinder and at 3200 rpm the screen is wiped completely clean 6400 times per minute. The shearing action of the tip cuts through hulls while the sides shatter and all done with less friction and heat and grinds through screens in material impossible to put through screens where hammers or knives only are used. Without excessive heating tough



**CLIPPER
MADE THIS CUT
IN 5 SECONDS**

Clipper Masonry Saws provide fast, economical cutting of special sizes and shapes of Clay, Concrete, Magnesite, Sillimanite, Acid Resistant Brick and other refractories.

Precision cuts easily made assuring tighter joints and longer lasting walls and arches in furnaces, boilers and acid chambers. Greater salvage of materials made possible through use of this equipment.

FREE TRIAL IN YOUR PLANT.

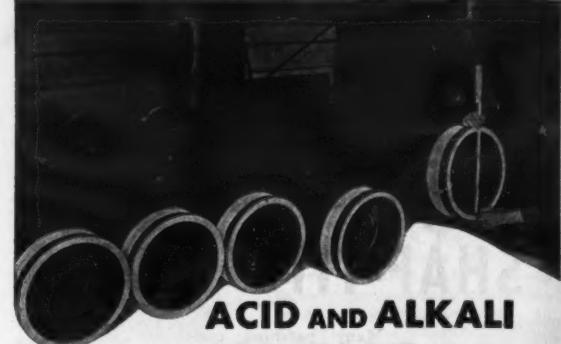
Complete information sent on request.

**CLIPPER MANUFACTURING CO.,
4034 Manchester, St. Louis 10, Mo.**



**Write for
DESCRIPTIVE
LITERATURE**

When inquiring specify CP A3727 — see handy form pages 2-3



ACID AND ALKALI RESISTANT

HAVEG is a molded plastic, which is completely resistant to most acids or alkalies. Its chemical resistance is uniform throughout its entire mass. It is not a lining or coating.

HAVEG Chemical Equipment is made in standard tanks, pipe, towers, fittings, valves, fume duct and related items, also a variety of special equipment.

Send for Bulletin F3 which gives complete design, engineering and application data.



When inquiring specify CP A3728 — see handy form pages 2-3



GENERAL STITCHED PANEL CRATES

Whether it's a uniform product like a range or an odd-shaped unit like a stoker . . . GENERAL Engineered Shipping Containers are designed specifically for the product. Above, a General Stitched Panel Crate is used to pack a gas range. Note that a minimum of lumber is used, assuring lighter weight and easier handling. Great strength is added by the diagonal braces. This time- and labor-saving crate comes in six complete pre-stitched panels, pre-bored, ready for assembly. Write today for full details on General Box's complete line of Shipping Containers.

GENERAL BOX COMPANY

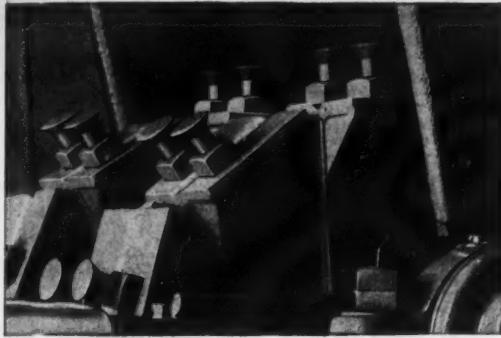
General Offices: 522 N. Dearborn St., Chicago 10, Ill.; District Offices and Plants: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon . . . Continental Box Company, Inc.: Houston, Dallas

When inquiring specify CP A3729 — see handy form pages 2-3

CHEMICAL PREVIEW

PRODUCTION

hulls are cut while the sides shatter and give great capacity in grains through medium, fine or coarse screens and make a very uniform and granular grind on all dry materials; green material ground through fine screens and are much easier to dry or dehydrate as the ground product is uniform



Combination knife-hammer for tough, stringy materials and fibrous parts are cut, shredded and ground. Many oily materials can be ground through medium fine screens without clogging or heating and are easier to bolt or screen and in many cases will go through the grinder the second time for a finished product.

W. W. GRINDER CORP., Dept. CP, Wichita, Kansas.

When inquiring specify CP A3730 — see handy form pages 2-3



Motors for Many Applications — Hoists, Molding Machines, Diesel Generators, Etc.

8-page, file-size, condensed catalog bulletin (printed in Spanish and Portuguese as well as English) presents specifications and descriptions of standard Motors and generators made by Star and describes facilities for building special motors. Illustrations show many typical applications in hoists, comminutors, canning machinery, diesel generators, dry-cleaning machinery, printing equipment, machine tools, and other equipment in which severe service conditions are encountered. Specifications and load capacities are included for squirrel-cage induction motors $\frac{1}{2}$ to 200 HP; wound-rotor induction motors $\frac{1}{2}$ to 200 HP; direct current motors one to 200 HP; and design features of Star gearmotors and brakemotors.

STAR ELECTRIC MOTOR CO., Dept. CP, 200 Bloomfield Ave., Bloomfield, N. J.

When inquiring specify CP A3731 — see handy form pages 2-3



New Magnetic Pulley Catalog for Paper & Other Plants

A 32-page catalog describing electromagnetic pulleys and pulley type separators has been just issued which describes in detail uses of magnetic pulleys in paper mills, grain elevators, textile mills, foundries, flour mills, food plants, and many other industries; tells how to select a magnetic pulley; and includes tables, capacities, dimensions, etc. Specifications of Dings air-cooled magnetic pulleys are fully covered and installation photographs are liberally used. In addition to data on pulleys, the catalog shows other classes of magnetic equipment. Copies may be secured on request.

DINGS MAGNETIC SEPARATOR CO., Dept. CP, Milwaukee 1, Wis.

When inquiring specify CP A3732 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

**LABOUR TYPE G
MEETS YOUR SPECIFICATIONS**

PUMP REQUIREMENT SPECIFICATIONS

Type of Seal	Balanced liquid
Location of Seal	Integral with impeller
Size and Number of Packing Rings	None
Mechanical Sealing Ring	None
Shaft Clearance Running	Approximately $1\frac{1}{4}$ " on diameter
Shaft Clearance Standing	Approximately $1\frac{1}{4}$ " on diameter
Circulation through Seal	None
Type of Pump	Self-Priming centrifugal
Type of Priming	LaLabour Hydrobalance
Impeller Characteristic	Open type
Minimum Impeller Clearance	$1\frac{1}{32}$ "
Impeller Sealing Rings	None
Type of Drive	Motor through coupling or direct mounted
Type of Bearings	Ball
Bearing Lubrication	Oil
Bearing Protection	Oil sealed



Set up your requirements for pumping service and check them against this sample specification sheet. You'll find LaLabour Type G the full answer to your needs; you will not have to compromise or accept less than you'd like to have.

There is no packing, no rubbing seal in a LaLabour Type G. That one fact will save

you countless hours — and dollars — of maintenance. It simply cannot leak around the shaft. And it's a self-priming pump, which makes it applicable to a wide range of services where bottom outlets should be avoided, or where the ability to handle air or vapor is essential.

Send for Bulletin 51 and full details.

THE LABOUR COMPANY, Inc.
Elkhart, Indiana, U. S. A.

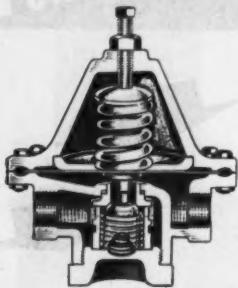


When inquiring specify CP A3733 . . . see information request blank, pgs. 2-3

CASH STANDARD

CLASS D... SINGLE SEAT PRESSURE REDUCING VALVES

What they do



CASH STANDARD CLASS D Single-Seat Pressure Reducing Valves automatically reduce a higher pressure to a lower pressure and maintain that lower pressure constant, even though the initial pressure is erratic, or the demand intermittent.

Where Used

This valve, tested and proved in the field of actual service for years past, is extremely dependable for use with steam, cold water, hot water, air, oils, many chemicals, most gases—practically everything that flows.

SIMPLICITY

A simple single-seated piston, moving in its cylinder, does the real work of pressure reduction. The simplicity of adjustment and sturdy construction are shown by the sectional view. There are no levers, bearings, packing, external dash pots, or other delicate parts.

WIRE DRAWING ELIMINATED

The valve seat is small in relation to the inlet. It must, therefore, open wide to handle the desired volume. This eliminates wire drawing, insures clean sealing surfaces, and prevents injury from any passing foreign substances that may escape the strainer.

SELF-CONTAINED STRAINER

Located close to the seat, where it is most effective, is a screen. It heads off damaging foreign substances right at the seat, insuring longer life of wearing parts. No separate strainer is needed on the line.

NO SEIZING OR STICKING

The inside operating parts are entirely surrounded by and subjected to fluid at the same temperature. Since all parts necessarily expand and contract equally, binding and sticking is impossible.

ACCESSIBILITY

It isn't necessary to remove the valve from the line; simply unscrew cap and remove all inside working parts for cleaning, regrinding, or after long service, for renewal.



SEND FOR
BULLETIN 950

CASH STANDARD
CONTROLS...
VALVES

A. W. CASH COMPANY
DECATUR, ILLINOIS

When inquiring specify CP A3734 — see handy form pages 2-3

Page 94

PRODUCTION

Plastic Caps & Sleeves Shrunken on Tubes for Moisture Proof Fit

Used on refrigerator condenser tubes, tubes in air conditioning equipment; on bus bars, cables. Uses — Properties of this compound suggest many applications in addition to that for which it was originally designed primarily — protecting tubes in the condenser systems of refrigerators during the manufacturing process. Equally successful applications have been: lead markers for wires; noise dampeners on machinery; insulation coverings for bus bars; Selsyn motors; insulation of wire cleats. Features — Both sealing caps and sleeves are completely water resistant and have good electrical properties. The caps and sleeves are available in red, blue, green, orange, yellow, white and transparent. Caps and sleeves are low cost and easy to assemble. They have great dimensional flexibility. Tubing is left clean.

Description — This new type plastic compound was originally developed to seal the ends of metal tubing to keep the interior or free of dust and moisture. Such protection is important in shipping, storing and handling. For example in the refrigeration condenser tube applications the sleeves were designed to seal the joint between two telescoping tubes in the same type system. Caps and sleeves are shipped dry and are expanded by placing them (for five hours) in a special fluid — G-E Number 12501 Dilater — which swells them to as much as 50% of their normal size. Upon removal from the dilater and placed on tubing they shrink to below normal size forming a tight fit. Available in specified diameters and thicknesses. Prop-

Now 40% GREATER
DISCHARGE
CAPACITY

IDEAL Rechargeable
Flashlight STORAGE BATTERY

NOW IMPROVED!

This increased discharge capacity means:—MUCH BRIGHTER, LONGER SUSTAINED LIGHT—smaller voltage drop assuring TOP LEVEL-LIGHT VOLUME—Even greater flashlight satisfaction than already experienced by MANY THOUSANDS OF USERS—CAN OUTLAST 400 or more DRY CELLS—SAVES up to \$10 on each flashlight. Fits standard flashlight case using 2 or more 1 1/4" size D dry cells.

GUARANTEED!

IDEAL Battery Chargers in single, 6-gang and 12-gang types, plug into any light socket. Also rechargeable from automobile ignition line.

PROMPT Write for
DELIVERY Bulletin BB 343



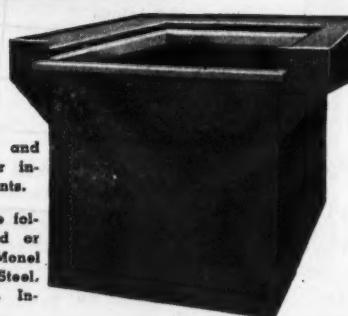
IDEAL Sycamore

Storage Battery Division

IDEAL COMMUTATOR DRESSER CO.
5137 Park Ave., Sycamore, Ill.
Sales offices in all principal cities
In Canada: Irving Smith Ltd., Montreal, Quebec

When inquiring specify CP A3736 — see handy form pages 2-3

KIRK AND BLUM INDUSTRIAL METAL TANKS



Specially designed and built to meet your individual requirements.

Made of any of the following: Steel, Lead or Rubber Lined, Monel Metal, Stainless Steel, Copper, Aluminum, Inconel, etc.

Tanks are supplied with or without exhaust ducts and fans, as your conditions or specifications indicate.

Send us your blue prints for prompt quotations.

WRITE FOR BOOKLETS

- "Fan Systems for Various Industries"
- "Blower Systems for Woodworking Plants"
- "Dust Collecting Systems in Metal Industries"
- "Industrial Ovens"
- "Data on Kirk & Blum Production Facilities"

THE KIRK & BLUM MANUFACTURING CO., INC.

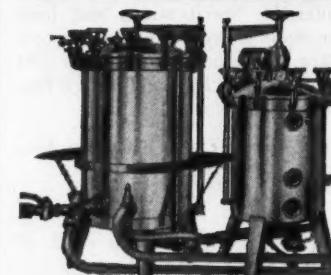
2833 SPRING GROVE AVE., CINCINNATI 25, OHIO

THERE IS NO OTHER
Filter
LIKE THIS

The Stainless Steel

KLEIN

IDEAL DIATOMACEOUS
EARTH FILTERS AND
SLURRY FEEDERS



Illustrated are the radically different Klein Ideal Filter Leaf with discharge tubes that practically eliminate the danger of clogging.

ESTABLISHED 1909

KLEIN

FILTER & MANUFACTURING COMPANY
1225-29 SCHOOL STREET • CHICAGO 13, ILLINOIS

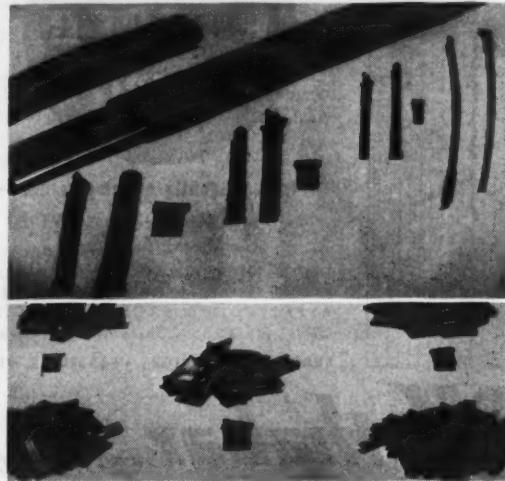
WRITE TODAY for
full information and
the latest Klein Bul-
letin.

When inquiring specify CP A3637 — see handy form pages 2-3

CHEMICAL PREVIEW

PRODUCTION

erties: Power factor — 0.005; dielectric constant 4.85, dielectric strength (short time test) 330 V/Mil; Tensile strength (dried) — 2000-400 psi; Heat resistance: short time exposure — 150 degrees C (2 to 4 hours); 120 degrees C (6 to 10 hours). Special heat resistance requirements can be fulfilled. Sizes — diameters; caps — $\frac{1}{8}$ to



Upper view — some applications of plastic caps and sleeves including use on bus bars; lower view illustrates size range.

2 inches; sleeves — $\frac{1}{8}$ to 2 inches. The sealing caps can be crimped any length with a trade mark if desirable. Dilater is supplied in one gallon and five gallon containers and keeps without spoilage. Complete details on request.

GENERAL ELECTRIC CO., (Plastic Divisions), Dept. CP, Pittsfield, Mass.

When inquiring specify CP A3738 — see handy form pages 2-3

*

Resistance Thermometers for Measurement; Control — Indicators, Recorders, Controllers

Resistance Thermometers for measurement and control are fully described and illustrated in forty-two page catalog. The initial pages are devoted to a discussion of the advantages of the electrical resistance thermometer and the functions of the Thermohm detector, as incorporated in this maker's instruments. Typical installations are pictured and explained. Technical information and general specifications on portable, panel indicators, indicating controllers, etc. is most complete. Catalog 33C.

LEEDS & NORTHRUP CO., Dept. CP, 4901 Stenton Ave.

When inquiring specify CP A3739 — see handy form pages 2-3

*

Once Through and Recirculating Cooling Water Studies

A thirteen page article discusses the results obtained in scale prevention in cooling water systems using various chemicals under various conditions. The effect of calcium content, cycles of concentration, temperature, treatment, etc. are evaluated. Numerous photomicrographs illustrate the effect of these variables on the scale crystals formed. Designated as Betz Technical Paper No. 102, "Once Through and Recirculating Cooling Water Studies" will be furnished free on request.

W. H. & L. D. BETZ, Philadelphia 24, Pa.

When inquiring specify CP A3740 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

BROWN FINTUBE *Immersion Type* STEAM TANK HEATERS

As illustrated herewith, Brown Immersion Type Steam Tank Heaters consist of a number of lengths of Brown Fintubes connected in series, and inlet and outlet steam lines. The heaters have low center of gravity. They can be handled safely by one man or very easily by two men. The cross handles aid in positioning the heater over the discharge outlet in a car, in blocking the heater at various depths, and in removing the unit after the tank is emptied.

These heaters are ideally used with any material, the viscosity of which can be lowered by heating. They speed up the emptying of tank cars, and permit many viscous materials to be handled in cars not fitted with steam coils. Furnished in two sizes — the No. 642 for use with tank cars — and the No. 442 for use with tank trucks. Prices, dimensional data and delivery information furnished promptly. Write today.

THE **BROWN FINTUBE** CO.
119 HURON ROAD • ELYRIA, OHIO

MANUFACTURERS OF BROWN FINTUBES
AND FINTUBE HEAT TRANSFER PRODUCTS

When inquiring specify CP A3741 . . . see information request blank, pgs. 2-3



Would you use a bus for bricks? A panel truck for gravel? Not likely. Every vehicle has its own job.

And every fire extinguisher also has its own job. Gasoline and oil fires, for example, call for an entirely different extinguisher than textile and rubbish fires.

Stationed near you is a trained Fire Protectioneer able to advise you on the correct equipment for your every fire hazard. Backing him is this 40-year-old concern, manufacturing a complete line of underwriters' approved fire extinguishers. There is no charge for this service.

Call your distributor or write direct.

IF IT'S GENERAL IT'S DEPENDABLE

S-O-S *The Guard*, vaporizing liquid extinguisher (right) is Underwriters' approved for use on electrical, chemical, gasoline and paint fires. One quart or $1\frac{1}{2}$ qt. size.



THE GENERAL DETROIT CORP.

2270 E. JEFFERSON AVE., DETROIT 7, MICH.

Distributors in principal cities

CHICAGO

DALLAS

NEW YORK

West Coast Affiliate: The General Pacific Corp.

Seattle

LOS ANGELES

San Francisco



Let a General Fire Protectioneer prescribe the right extinguisher for your every fire hazard.

When inquiring specify CP A3742 — see handy form pages 2-3

PRODUCTION

Compact Laboratory Dryer With Automatic Temperature Control

For drying samples of variety of materials

Uses — This electrically heated laboratory dryer, with automatic temperature controls as standard equipment as standard equipment is especially adapted for the drying of small samples of a wide variety of materials.

Features — The equipment is highly compact and provides close control and economical operation. The construction is such that materials may be dried on trays or pallets, or hung on wires, stacks or hooks. The automatic temperature control is most important in the drying process. With this it is possible to maintain accurate control of temperatures within the dryer at all times during the drying operation. Temperatures which range up to 300 degrees F. are produced by six electrical heating elements. Hand switches control each heating element.

Description — The cabinet and door of the dryer are constructed of heavy gauge sheet metal and are insulated with 2 inch thick rock wool and cork. The construction effectively prevents heat loss and aids in maintaining uniform temperatures. The interior can be observed during the drying process through a porthole without opening the door. Positive circulation of heated air is maintained actively throughout the interior of the cabinet, and is produced by a direct motor driven fan. Exhaust of moisture laden air is provided for in order to keep the humidity inside the dryer at ideal point at all times during the drying operation. Outside dimensions of the cabinet are 31

MOISTURE ENGINEERING

with the KATHABAR System automatically and accurately provides

THE PROPER HUMIDITY



—Independently of temperature—

for processing operations in the manufacturing of:

DRUGS, PHARMACEUTICALS, CHEMICALS, FOODS, OR ANY PRODUCT OR MATERIAL AFFECTED BY EXCESS HUMIDITY CONDITIONS... Write for information.

SURFACE COMBUSTION • TOLEDO 1, OHIO

Kathabar System of
HUMIDITY CONTROL
(ADVANCED AIR CONDITIONING)

When inquiring specify CP A3744 — see handy form pages 2-3

MULTI-VALVE -- WONDER VALVE!

Yes . . . a wonder valve. For the LUDLOW Multi-Valve gives throttling action and positive shut-off with reliable and long-lived performance

Accurate throttling action results from an ingenious multi-staging of the cone-shaped plug by which pressure is reduced step by step in a series of annular expansion chambers. Positive shut-off is assured through the multi-contact lands seating firmly against the converging walls of the seat. Cone is mounted rigidly on a non-revolving stem that operates with a straight push-pull action . . . gives longer packing life. The valve requires no regrinding.

LUDLOW Multi-Valves are built to meet modern needs. Write for Bulletin 103.



M-5

LUDLOW VALVE
MFG. CO. INC. TROY, N.Y.

When inquiring specify CP A3745 — see handy form pages 2-3

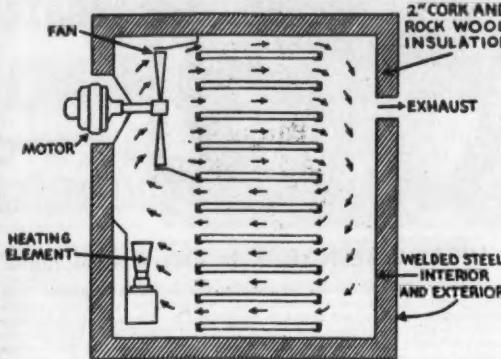
CHEMICAL PREVIEW

PATENT APPLIED FOR

When inquiring specify CP A3743 — see handy form pages 2-3

PRODUCTION

inches wide, 36 inches high and 25 inches deep, exclusive of stand or table and exclusive of temperature control on the top. There is room in the dryer for ten trays, 12 inches by 20 inches with a total surface area of 2400 square inches or 16.6 square feet. The dryer is usually mounted



Dryer construction detail — fan, exhaust

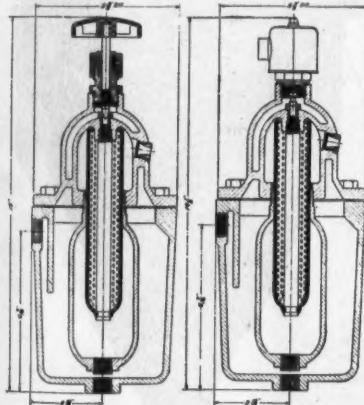
on a specifically constructed stand which is extra equipment. The dimensions of the stand are two feet high, two feet, seven and one quarter inches wide and two feet deep.

PROCTOR & SCHWARTZ, INC., Dept. CP, 7th & Tabor Rd., Philadelphia, Pa.

When inquiring specify CP A3746 — see handy form pages 2-3

Humidifiers Use Venturi Nozzle

Fan, motor, eliminated simplifying maintenance



Solenoid and hand operated humidifiers charge steam. Electric fan and motor used on former models is eliminated. By virtue of fast steam discharge through the venturi thorough mixing with air is assured. This simplifies maintenance, since there is no motor to oil. Elimination of motor also reduces the electrical load on the humidistat, which controls relative humidity by making and breaking an electrical circuit.

Description — One of the models has a solenoid valve to automatically control the discharge of steam, while the other one has a hand-operated valve to meet the need for manually controlled humidification.

ARMSTRONG MACHINE WORKS, Dept. CP, Three Rivers, Mich.

When inquiring specify CP A3747 — see handy form pages 2-3

Today

Your Standard
GATES VULCO ROPES

Are Giving **BETTER SERVICE**
Than **ANY V-Belts Ever Built Before!**

To meet the needs of our Army's tanks, tractors and self-propelled big guns in combat service, it was necessary to develop V-Belts far superior to any that had ever been built before. Gates developed and built these greatly superior V-BELTS—and here is why this fact is important to you:—

Here is the reason Every improvement developed by Gates for these Army V-BELTS has been added, day by day, to the quality of the standard Gates Vulco Ropes which have been delivered to you.

This is one of the very few instances in which improvements developed primarily for military use could be passed on immediately to you. Ordinarily, you would have had to wait. But in the case of Gates V-belts it was clearly recognized that industry simply had to have the best V-belts that could be made in order to maintain the production volume that was essential to winning the war.

That is why Gates has been able to pass on to you, day by day, every V-belt improvement developed for our armed forces during the war—and that is why your Standard Gates Vulco Ropes are today outperforming any V-belts ever built before!

THE GATES RUBBER COMPANY

Engineering Offices and Jobber Stocks in All Large Industrial Centers

All Gates
V-Belts are
Built With
The Patented
**CONCAVE
SIDE**



THE MARK OF
SPECIALIZED RESEARCH

GATES VULCO ROPE DRIVES

CHICAGO 6, ILL., 549 West Washington. NEW YORK CITY 3, 215-219 Fourth Avenue. ATLANTA 3, GA., 521 C. & S. Nat'l Bank Bldg.

LOS ANGELES 21, CAL., 2240 E. Washington Blvd. DENVER 17, COLO., 999 S. Broadway. DETROIT 2, MICH. 223 Boulevard Bldg.

PORTRLAND 9, ORE., 333 N.W. 5th Ave. DALLAS 2, TEXAS, 1710 N. Market St. SAN FRANCISCO 3, CAL., 170 Ninth St.

When inquiring specify CP A3748 . . . see information request blank, pgs. 2-3

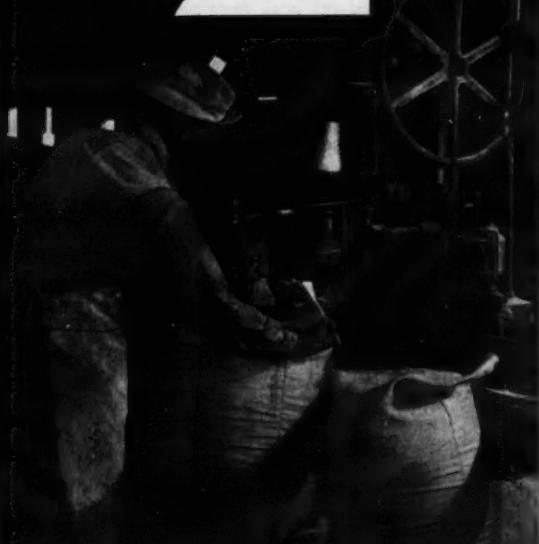
Production UNITS

UNION SPECIAL CLASS 20500

Heavy Duty Bag Closers

A good investment for any plant where 100 lb. and larger filled cotton, jute or paper bags are closed. An adjustable sewing head mounting accommodates different sizes of bags. Unit has power driven, horizontal conveyor, inclined conveyor, or both; or conveyor transmission only, for plant production line. Three control systems available, including single pedal control of conveyor or drive and sewing head. Write for Union Special Bulletin No. 200, describing the complete line of Union Special bag closers, sewing heads, stitch types, methods of closure, variety of installations and other useful information.

Union Special Machine Company
442 N. Franklin Street Chicago 10, Illinois



Union Special
BAG CLOSING MACHINES

When inquiring specify CP A3749 — see handy form pages 2-3

Page 98

PRODUCTION

Hydraulic Elevating Table

Raised and lowered by convenient foot pedals



Elevating Table

iently located foot pedals. A handy push bar is readily removed when necessary to provide greater freedom of movement around the table.

Description — This hydraulic elevating table is available with smooth steel platform or regular reversible roller and ball transfer tops. The running gear consists of two rigid and two swivel rollers and ball bearing casters of semi-steel or composition rubber tires. Detailed information concerning this and other hydraulic table units is available upon request.

REVOLVATOR CO., Dept. CP, North Bergen, N. J.

When inquiring specify CP A3750 — see handy form pages 2-3

Uses — Raising heavy material and dies to convenient levels for operators; also raising sheets for feeding; also many other material applications where safe, speedy handling is desired.

Features — Operation is by an efficient hydraulic mechanism, using conven-

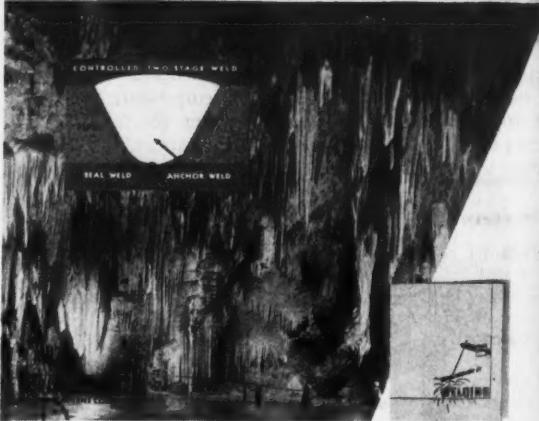
Data & Plastics Comparator For Selection of Thermosetting Molding Materials

"Selecting the Right Thermosetting Molding Material" is the title of a 36-page booklet just issued. The new booklet covers the same subject matter as the new technical film: "BAKELITE Plastics — Selecting the Right Thermosetting Molding Material," and is intended as a companion piece for it. The motion picture, a thirty minute, 16 mm. sound film, explains the scientific basis by which the engineer or artist-designer can determine the proper phenolic or urea molding material for his specific product requirement. In view of the technicality and comprehensive coverage of the subject depicted pictorially in the film in so brief a time, this company has issued this profusely illustrated booklet, which expands and explains the subject matter of the technical film. It is designed as a study booklet for the foreman, molder, engineer, designer, executive, or plastics student to aid in their understanding of the proper choice of a thermosetting molding plastic.

The booklet includes the thermosetting plastics comparator, a special chart which shows in a readily understandable manner the complex relative values of the various phenolic and urea molding plastics. Such factors as shock resistance, thermal insulation, ease of molding, organic solvent resistance, loss factor, resistivity, cold flow, and hardness are given comparative ratings in the Comparator, and then covered more completely under separate sections. These sections include all of the factors included in the table but in much fuller detail. Simplified explanations of the methods of testing molded plastic pieces are also given, in order to explain the means used to determine properties.

BAKELITE CORP., Dept. CP, 300 Madison Ave., New York 17, N. Y.

When inquiring specify CP A3751 — see handy form pages 2-3



NO LURAY CAVERN LOOK to Butt Welded Joints*

Stalactites and stalagmites are beautiful to see in an underground cavern but similar protrusions inside of fusion butt welded pipe joints have obvious dis-advantages. Icicles of metal can be eliminated by the use of backing rings, but these too have many dis-advantages. Westport Joints made by a patented method of Controlled, Two-Stage Welding assure "penetration without protrusion"; i.e., strength through the pipe wall to the root of the weld with a smooth contour at the base of the weld. . . Our bulletin "Something New in Welding" tells the complete story. Write for it today. And remember, while our shop pre-fabricated piping can be made with any type of joint, we believe you'll prefer and specify the Westport, after you read our bulletin.

WESTPORT JOINT

PATENTED
W. K. MITCHELL & CO., INC.
2946 ELLSWORTH STREET
PHILADELPHIA 48, PA.
SINCE 1899

*MADE WITHOUT BACKING RINGS BY THE MITCHELL-WESTPORT METHOD

MITCHELL
PIPING FABRICATORS AND CONTRACTORS

When inquiring specify CP A3752 — see handy form pages 2-3

a Leader

GAYCO Centrifugal Air Separator

The features embodied in the new model GAYCO Centrifugal Air Separator make them a leading means of increasing the capacity and efficiency of all types of grinding mills. They have quick, positive adjustment. When once adjusted they are not affected by variation in speed or rate of feed.

They require very little power to operate. And they feature the exclusive GAYCO principle of rejecting coarse particles by means of a centrifugal rising fan. They separate 98% through 325 mesh, and give 35% to 30% greater recovery of fines.



The Gayco Separator Handles

SUCH PRODUCTS AS
BAGASEE GROUND HAIR
CASEIN GROUND OATS
COCOA POWDER GUM ARABIC
COTTONSEED SOY FLOUR
MEAL SPICES
FERTILIZER SUGAR

Universal Road Machinery Co.

RUBERT M. GAY DIVISION, 117 Liberty St., New York 6, N. Y.
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring specify CP A3753 — see handy form pages 2-3

CHEMICAL PREVIEW

In a Pinch...

STRIP HEATERS in 24 Hours



For rush or regular orders. Curved or Straight. 8" to 96" long. For temperatures up to 1200° F.

CARTRIDGE HEATERS in 3 Days



For your molds, platens and dies. Pigtail, spade or right angle terminals. From $\frac{3}{8}$ " to 1-5/16" diam. — 2-1/2" to 2-1/2 feet long. New department especially set-up to handle rush orders.

IMMERSION HEATERS. . Expanding production facilities to meet increased demand and emergency requirements.

BUY THE BEST! AVOID BREAKDOWNS!

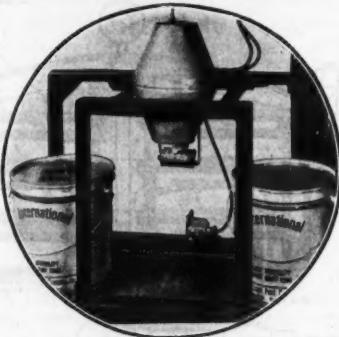
TRENT Electrically Heated Industrial Equipment
HAROLD E. TRENT COMPANY
FURNACES • OVENS • HEATING ELEMENTS
LAB and SPECIAL EQUIPMENT • KETTLES

235 LEVERINGTON AVE.

PHILADELPHIA 27, PA.

When inquiring specify CP A3754—see handy form pages 2-3

CODE DATE ALL TYPES OF CONTAINERS FLAT OR RECESSED THIS NEW MARKOMATIC WAY



No Work Stopping
Easy to Install

Fully Automatic and
Self Synchronizing

Example 1 of a Series

MARKOMATIC conveyor model at modern plant of International Paint Corp., Union, N. J., marks code date on recessed top automatically, without stopping can. Mr. A. R. Smiles, Factory Manager, says, "Most efficient—contributed to increasing production—highly recommend this equipment."

MARKOMATIC marking equipment marks all types of container surfaces automatically with permanent quick-dry ink. Heavily constructed of metals for years of use. Guaranteed for one year.

Have you a marking problem?
Write today—no obligation

MARKING EQUIPMENT

ADOLPH GOTTSCHO, INC., 195 DUANE ST., N. Y. 13, N. Y.

When inquiring specify CP A3755—see handy form pages 2-3

JANUARY - FEBRUARY, 1946

PRODUCTION

Laboratory Mixers With Very High Torque Motors And Complete Speed Control

All stirrers equipped with solid brass chuck, cadmium plated, true running, $\frac{1}{4}$ " capacity

Uses — This line of laboratory mixers is of interest to analytical and research chemists.

Features — All stirrers are equipped with solid brass chuck — cadmium plated — true running — $\frac{1}{4}$ in. capacity.

Description — Model illustrated in Number 7605; rheostat control from 0



Stirrer handles anything
up to molasses

up. Regular standard motor suitable for continuous service 110V. Ample power; will stir wide range of materials up to molasses. Motor is fume resistant. Support rod is steel. Stirrer can be clamped to any standard laboratory support. Operates on either AC or DC — 110 V. Rugged chuck, cadmium plated, $\frac{1}{4}$ " rod. Other models include Number 7609 A which is a constant speed gear drive stirrer suitable for heavier laboratory mixing operations. Induction type motor, 110 V-AC only. Chuck speed 287.5 rpm. Torque 3.0 inch lbs. 1/50 HP motor, ball bearings, enclosed gears, forced air circulation, push button switch. A pigmy stirrer Number 7605 C which is a midget laboratory model with an unusual amount of torque for a stirrer of this size. Suitable for light mixing. Speed control 0-5000 rpm. Another model Number 7605 B is a heavy duty table top stirrer. A rheostat provides smooth speed control over full range-continuous duty motor 110 V. AC-DC; 1/75 HP; 0-8000 rpm. range at no load; ball bearings; forced air circulation. Literature and complete details concerning these various mixers and their wide range of applications are available on request.

PAUL MYERS INC., Dept. CP, 81 Reade St., New York 17, N. Y.

When inquiring specify CP A3756
— see handy form pages 2-3

A Really SWEET JOB . . .

... made possible by
NIAGARA FILTER

- In the production of flavored and colored hard candies, an important amount becomes off-flavored, off-colored, broken — what is called CANDY SCRAP.

In order to salvage as much as possible — since sugar is both costly and scarce — the manufacturer mixed all the various colored and flavored CANDY SCRAP together, and then re-colored and re-flavored it all with a more prominent color and a stronger flavor. This was marketed as an inferior, off-grade or substandard product.

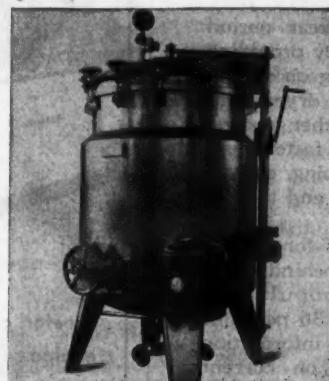
HOW THE "N.F.E."* SOLVED THIS PROBLEM . . .

The "N. F. E."* melted the CANDY SCRAP — treated it — and then filtered it HOT in an all-stainless NIAGARA FILTER.

The "N. F. E."* — by this simple engineered treating-and-filtering procedure — reconditioned, clarified, decolorized and deodorized all the CANDY SCRAP!

This process recovered all the precious sugar — produced the original bland, odorless, colorless syrup!

This "N. F. E."* solution enables the manufacturer to eliminate all CANDY SCRAP — to market only top-price and top-prestige and top-quality candies . . . and to utilize every dram of syrup he can get!



ABOVE... A No. 200 typical steam-jacketed, all-stainless Niagara Filter with 15" x 10" quick-opening cake removal door, vacuum receiver for cake washing, and discharge check valve.



THIS IS BUT ANOTHER EXAMPLE of Niagara's "Engineered Filtration" . . . of the filtration "know how" gained through years of training and experience in the successful filtration of numerous products over a long period of years!

IF IT CALLS FOR FILTRATION call for an "N. F. E."* . . . the complete engineering service from laboratory appraisal of the filtration characteristics of your product to producing the daily production requirements of your plant — at the lowest economical operating costs is available to you.

*"N. F. E." — Niagara Filtration Engineer — a trained graduate engineer with years of actual field experience in chemical, food, fermentation and process industry filtration problems. Niagara Filter has a staff of N. F. E.'s available to assist you without cost or obligation.

niagara filter CORPORATION

3080 MAIN STREET BUFFALO 14, N. Y.
IN CANADA... NIAGARA FILTER CORPORATION (CANADA) LTD.

FILTRATION ENGINEERS TO THE PROCESSING INDUSTRIES

When inquiring specify CP A3757 — see handy form pages 2-3

See for yourself



Why ARMSTRONG TRAPS ARE SO POPULAR

- There's no involved explanation needed to show why Armstrong traps are so popular in chemical process industries. Briefly, the reasons are:

- 1) Automatic air elimination and positive, dependable condensate drainage.
- 2) No steam leakage under any load conditions.
- 3) Exceptionally low maintenance and perfect operation even with ordinary amounts of dirt and foreign matter.

Reports gathered over a 13-year period show that these features pay off by providing an average of 40% faster heating on steam-jacketed equipment, unit heaters, dryer rolls, cookers, evaporators and many other heating and process units. Along with the faster heating provided by Armstrong trapping, owners report greater production and an end to trap maintenance worries.

Send for a copy of Catalog H for all the reasons behind Armstrong's popularity. There are 36 pages of valuable information and hints on current steam trapping practices.



ARMSTRONG MACHINE WORKS
880 Maple Street • Three Rivers, Michigan

Armstrong
STEAM TRAPS • AIR TRAPS • PURGERS • HUMIDIFIERS

When inquiring specify CP A3758 — see handy form pages 2-3

Page 100

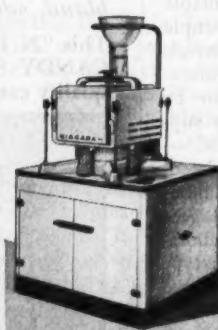
PRODUCTION

Data on Lecithin Covers Its Proper Use in Thirty Different Food Products

An eight page bulletin gives comprehensive treatment to the subject of the use of lecithin in a wide variety of food processing applications such as in confectionery and bakery products, cooking oils, mayonnaise, peanut butter and ice cream mixes. The approach of the bulletin to this subject is through a detailed discussion of eighteen basic mistakes that are often made in using this material. The first deals with improper procedure and use in relation to chocolate products. Here the matter of overuse of lecithin is emphasized as is the application of lecithin in correcting "mushing." Other important points such as the proper time for addition to chocolate and use in ice cream coatings are also dealt with. Also discussed is the inefficiency of lecithin in sirups as a stabilizing or dispersing agent. Reference is also made to results when a relatively fair amount of free fat is present. The section dealing with bakery products gives a general coverage of the matter and takes up in turn bread, cakes, biscuits and pies. Advantages of the use of lecithin in cooking oils are pointed out but the need for care to avoid overuse and consequent increased penetration of the cooking fat into the article being treated is stressed. A few pertinent suggestions on storage of lecithin close the discussion. For handy, quick reference much of the data outlined is tabulated in the back part of the bulletin. Copies of "Eighteen Mistakes In the Use of Lecithin" are available on request.

W. A. CLEARY CORP., Dept. CP, New Brunswick, N. J.

When inquiring specify CP A3759 — see handy form pages 2-3



LARGE SCALE FEATURES ON A SMALL TEST SIFTER

GYRO-LAB is a multi-purpose machine for conducting both continuous flow and time-limit laboratory tests.

Accurate test results can be quickly converted to the greater capacities of large mass-production sifter equipment and used as a check on the efficiency and output of full-scale plant equipment.

Inquire today about the GYRO-LAB and the full NIAGARA line of GYRO-WHIP and SUPER-SIFTER production machines for scientific separations.

RICHMOND MFG. CO.
LOCKPORT, N. Y.

When inquiring specify CP A3760 — see handy form pages 2-3

SPARKLER MFG. CO.

244 Lake Street

MUNDELINE

ILLINOIS

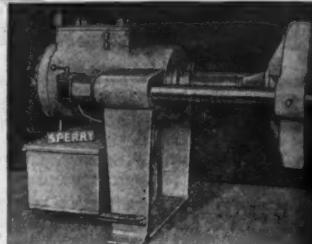


When inquiring specify CP A3762 — see handy form pages 2-3

CHEMICAL PREVIEW

**Easy... Does it
WITH THE NEW
SPERRY
EHC Closing Device**

Woman operator making
simple adjustments on the
New Sperry EHC



Speed your filtration cycle with the New
Sperry EHC Closing Device

The New Sperry EHC Closing Device requires
only simple adjustments at two points. So easily
operated that a girl operator
can do the work.

This completely enclosed, electric-hydraulic
unit provides positive,
precise, yet simple press
actuation, moving the
head in both directions.

It fits any make press
with minor alterations. On
Sperry presses a mere substi-
tution of the crosshead is ab-
that is necessary.

Write today for complete information
D. R. SPERRY & COMPANY, Batavia, Ill.
Filtration engineers for over 50 years

SPERRY FILTER PRESSES

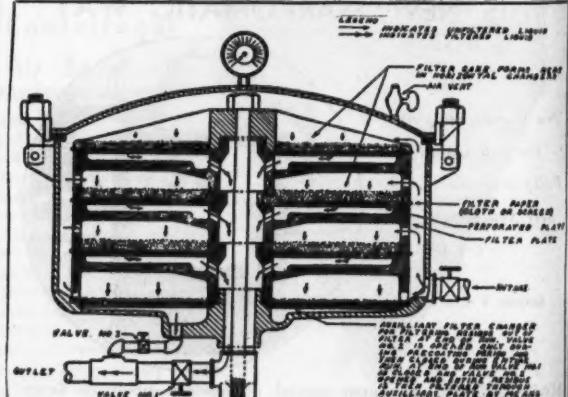
Eastern Sales Representative, Henry E. Jacoby, M.E.
205 E. 42nd St., New York 17, Phone: MURRAY Hill 4-3581

Western Sales Representative, B. M. Pilhasky

Merchants Exchange Bldg., San Francisco 4, Calif., Phone: Do 0375

When inquiring specify CP A3761 — see handy form pages 2-3

HORIZONTAL PLATE FILTERING



PRODUCTION

Controlled Ovens Test & Cure "Walkie-Talkie" Batteries

Heat of curing process causes tops of cells that are defective to blow out



ELECTRIC OVENS — insert shows roller trays

Uses — These special cabinet-type ovens have been installed in plant of maker of batteries for "Hand Talkie" and "Walkie Talkie" sets. (The battery cells being made with wet electrolytes, any defective ones are located readily during the curing process, as the heat of the ovens causes the tops of the faulty ones to blow out. This prevents defective cells from

being used in completed batteries.)

Features — The ovens are equipped with roller type trays operating on special formed tracks. Construction is such that the ovens can be converted into standard shelf type at comparatively low cost, should the need ever arise.

Description — The ovens are electrically heated, and have special controls. A feature of the heaters is the modulating current control which prevents an override in the temperature. When the desired temperature is approached, the current is gradually reduced automatically. Temperatures are held to plus or minus one degree Centigrade, and operation is on the crossflow recirculation principle.

KOCH INDUSTRIAL EQUIPMENT, Inc., Dept. CP, Evansville, Ind.

When inquiring specify CP A3763 — see handy form pages 2-3

Selection of Safety and Relief Valves

A complete line of safety and relief valves is described in the new catalog No. 45, just issued by the FARRIS Engineering Company. Many new valve designs and improvements in old designs are included. A "ready-reference pictorial index chart" shows line drawings of all the basic valve types. With this chart a valve user can pick out the valve he needs without having to thumb through a whole catalog. Directly opposite the pictorial index chart is a detailed index showing what the valve can be used for and where to find its specifications in the catalog. Another outstanding feature of the catalog is that each valve has a four-digit type-number which immediately indicates the design, the applications, and the connections of the valve. A copy of this catalog is available on request.

FARRIS ENGINEERING COMPANY, 400 Commercial Ave., Palisades Park, N. J.

When inquiring specify CP A3764 — see handy form pages 2-3

The Symbol That Came To Life!



The man who walks into your factory wearing this symbol is the living embodiment of a service which gives you the correct answers to your problems in efficient mechanical transmission of power. He's the Dodge Transmissioneer.



DODGE

MISHAWAKA

Supporting the Transmissioneer is a broad line of mechanical power transmission equipment — Dodge precision-built bearings, sheaves, pulleys, clutches and other drive components. Every Dodge product reflects the engineering advancements and manufacturing "know how" that come from 64 years of experience.



Assembling and disassembling power drive components is part of the intensive factory training which leads to a Transmissioneer's diploma.



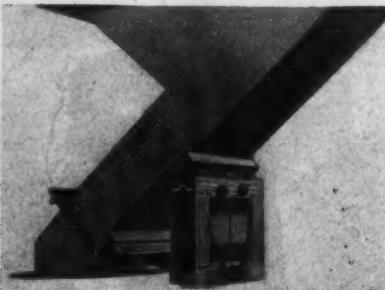
Copyright, 1946, Dodge Mfg. Corp.

FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY,
ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

NAME PLATES

When inquiring specify CP A3765 . . . see information request blank, pgs. 2-3

SPROUT WALDRON
Lifetime NON-ELECTRIC
MAGNETIC SEPARATOR



Save your grinders and other reduction machines and lesson fire hazards by installing this amazingly powerful metal catcher that removes metal from free-flowing materials. Easy to install in wood or metal spouts, requires no wiring, no maintenance cost, and lasts a lifetime. Inexpensive.

Made in sizes from 4" to 24".
 Write for bulletin No. F-1144.

SPROUT, WALDRON COMPANY

Manufacturing Engineers Since 1866

138 Sherman St.
 Muncy, Penna.

When inquiring specify CP A3766 — see handy form pages 2-3

Now! Get Copies of Anything —in a Jiffy!

... Right in your own office or plant! New, error-proof, low cost method saves time, drafting, tracing, typing, checking!

Get the copies you need — when you need them! APECO copies anything written, typed, printed, drawn or photographed—even on both sides! With this handy unit, you can turn out accurate, permanent copies at 1-a-minute speed—for less than the price of a phone call! No darkroom or technical knowledge needed. Anyone can operate APECO—"America's Most Widely Used Photocopy Equipment." Get full information, TODAY!



Photo-Copier \$55
 Capacity 10 x 20"

Also continuous cabinet models for prints of any length, up to 48" wide.

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Send me, without obligation,
 your 20-page, fully-illustrated book
 showing the "what" and "how"
 of Photocopying and the savings
 it makes in time, money and labor.

Name
 Company
 Title
 Address
 City & State

When inquiring specify CP A3767 — see handy form pages 2-3

PRODUCTION

Lightweight Glass Containers Cut Packaging, Handling Cost

Standardized designs pack efficiently; save space and can be used on equipment installed for other type packaging with but minor changes



Glass containers conveyed by cable line passing thru twister and chute to filler below

Uses — Recent and continuing developments and improvements in glass containers are enlarging their established uses and adding new ones. Glass containers easily adaptable to practically unlimited range of packaging methods and requirements for various products.

Features — Highly important is the steady decrease in weight that has been achieved during the past decade or more in various types of glass containers. Vacuum coffee jars have been reduced in weight from an average in 1934 of 24 ounces to 13½ ounces to-day. In approximately the same period 1 lb.

preserve jars have shown a decrease from an average of 9½ ounces to 6½ ounces. Beer bottles and glass containers for fruits, vegetables and other foods have been proportionately reduced in weight. Durability has been retained in spite of this weight reduction.

Description — The glass containers referred to here embodying lightweight, durability and design for high speed handling and efficient packing and shipping are available in a wide variety of styles and types. The accompanying illustration is from a film on glass packaging. (Information regarding booking for showing of this film on request.) Complete information regarding glass containers and glass packaging methods on request.

OWENS-ILLINOIS GLASS CO., Dept. CP, Toledo 1, Ohio.

When inquiring specify CP A3768 — see handy form pages 2-3

*

Automatic Electric Welding Process

The 1945 edition of the "Unionmelt" Welding Apparatus Catalog has just been published. This catalog describes in detail the various "Unionmelt" welding heads and their accessory equipment and attachments, and in addition gives pertinent information on the use and applications of this automatic electric welding process. Detailed information about each machine and head as to work range, current capacity, methods of use, etc., is given in tabular form. Another table supplies general data for making butt, plug, and fillet welds with the Unionmelt process. Copies of this catalog (F-6077) may be obtained by writing to any Linde district or to the general offices.

THE LINDE AIR PRODUCTS COMPANY, Dept. CP, 30 East 42nd Street, New York 17, New York.

When inquiring specify CP A3769 — see handy form pages 2-3

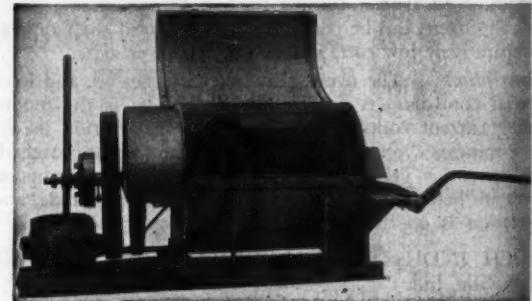
AN Outline OF THE COE DRAINATOR — **the ADVANCED STEAM TRAP with NO MOVING PARTS...**

SPEEDED manufacturing schedules demand this better steam trap. Its higher efficiency eliminates common bottlenecks and steps up production to new high levels. Greater air eliminating capacity permits quicker starts of cold equipment. Capacity for handling a larger volume of condensate gives increased transfer of heat. Continuous discharge of both air and condensate maintains high efficiency. The complete absence of moving parts avoids inspection costs and annual repair bills. A glance at the gauge glass indicates that the Drainator is efficiently performing the functions for which it was purchased — a question that is not easily answered in relation to conventional steam traps.

Get THE COMPLETE Story

Write to
The COE MFG. Co.
 503 Bank St. - Painesville, Ohio

When inquiring specify CP A3770 — see handy form pages 2-3



**Here's a Mixer
 that is fast and efficient
 ...read the description**

- Number 1 — Can be had in either end or side discharge.
- Number 2 — Ball bearings throughout — all guarded.
- Number 3 — V-belt motor drive or geared head motor drive.
- Number 4 — Multi-arranged paddles. All material in action at all times.
- Number 5 — Built in capacities from 5 to 60 cubic feet.

Write for full information

The Multiplex Concrete Machine Co.
 Elmore, Ohio

When inquiring specify CP A3771 — see handy form pages 2-3

Weld-Bilt

is the BETTER Way
to Lift or Transport
Your Materials . . .

Whatever your handling requirements may be, the WELD-BILT engineer can size up and recommend the equipment that will perform the work with dispatch and economy. Every WELD-BILT unit is designed and constructed for all-around service, convenience, and low maintenance cost, year in, year out. Used and recommended by industrial plants everywhere.

Portable Elevators—Hydraulic Lift Trucks
2 and 4 Wheel Trucks—Tiering Machines

Barrel Trucks and Racks



WELD-BILT
PORTABLE ELEVATOR

Your request will bring
illustrated folder cov-
ering all types of WELD-
BILT Equipment.

The WELD-BILT
Hydraulic Lift Truck

WEST BEND EQUIPMENT CORP.

226 Water St., West Bend, Wis.
Materials Handling Engineers

When inquiring specify CP A3772 — see handy form pages 2-3

PRODUCTION

Centrifugal Pumps for Water and Chemical Services

Centrifugal pumps for such services as handling hot sulfuric acid solution in brass plant, acid sludge in explosive plants are typical of the pumping equipment to be found in the complete line of centrifugal units shown in attractive eight page bulletin. Included in the selection are water pumps in all standard types and sizes for supply use in water works, plants and drainage purposes in mines and construction work; for boiler feed, fire protection and similar high pressure services. For ordinary service involving the handling of water with an appreciable amount of grit, ash and other solid, side suction pump in horizontal and vertical types is offered. Acid and chemical pumps, made of monel metal, nickel, bronze, etc. in sizes from 1" to 12" inclusive are also pictured and described. Such units, produced by this company are in use in industries handling acids, alkalies, dyestuffs, chlorine solutions, caustic soda, etc. Copies of Bulletin 200 on request.

LAWRENCE MACHINE & PUMP CORP.,
Dept. CP, 371 Market St., Lawrence, Mass.

When inquiring specify CP A3774
— see handy form pages 2-3

*

Welded Plate Equipment For Process Plants

A pictorial tour of the modern plant facilities and views and facts concerning products and activities of manufacturers of welded products from open hearth, stainless, alloy and clad steels under API, ASME, U68 and U69 codes, is graphically presented in a new brochure just released. Profusely illustrated, it clearly pictures the growth and development of this company during the past 50 years, providing the chemical, petro-chemical, refining and steel industries with a wide variety welded plate products. The new booklet contains many views of latest type of fabricating machines used in the plate shop to give shape and contour to flat steel. Hydraulic and power presses are pictured in various stages of operation — forming, crimping, flanging and bending both light and heavy plate. Several pages show extensive facilities for producing pressure vessels, galvanizing kettles, annealing covers, and a wide variety of special plate work, "custom made" on a production basis. Also shown are many standard and specially designed types of equipment precision-engineered and fabricated for industry.

NATIONAL ANNEALING BOX CO.,
Dept. CP, Washington, Pa.

When inquiring specify CP A3775
— see handy form pages 2-3

METERING YOU CAN
BANK ON...with R-C

dual-ability



R-C Positive Displacement
Meters accurately measure
from 5% to 130% of their
normal ratings.



Extreme simplicity of R-C Rotary Positive Displacement principle enables you to account economically for every cubic foot of gas metered through these units.

• You get accurate measurement of gas or liquid with Roots-Connersville Positive Displacement Meters.

Accuracy is assured by the simple, correct design of the meter, with its absence of small parts, impossibility of tampering and complete freedom from adjustments.

This simplicity naturally leads to low cost per cubic foot of measuring capacity and extremely low maintenance cost. Thus, R-C metering gives you *dual-ability* not obtainable in any other meters.

ROOTS-CONNERSVILLE BLOWER CORPORATION
One of the Dresser Industries
601 Richland Avenue, Connersville, Indiana



ROTARY POSITIVE GAS METERS

ROTARY POSITIVE AND CENTRIFUGAL BLOWERS • EXHAUSTERS • BOOSTERS
LIQUID AND VACUUM PUMPS • METERS • INERT GAS GENERATORS

When inquiring specify CP A3776 — see handy form pages 2-3

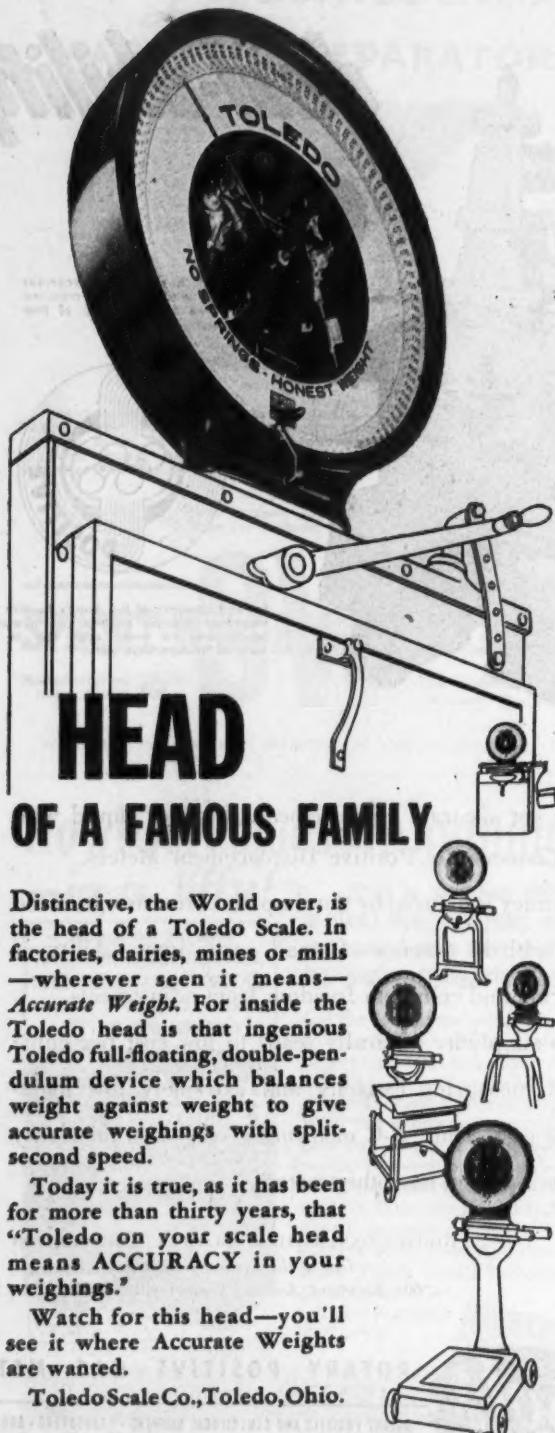
SPRACO NOZZLES

Write for NOZZLE CATALOG to

SPRAY ENGINEERING CO.
125 CENTRAL STREET • SOMERVILLE 45, MASS.



When inquiring specify CP A3773 — see handy form pages 2-3



Distinctive, the World over, is the head of a Toledo Scale. In factories, dairies, mines or mills—wherever seen it means—*Accurate Weight*. For inside the Toledo head is that ingenious Toledo full-floating, double-pendulum device which balances weight against weight to give accurate weighings with split-second speed.

Today it is true, as it has been for more than thirty years, that "Toledo on your scale head means ACCURACY in your weighings."

Watch for this head—you'll see it where Accurate Weights are wanted.

Toledo Scale Co., Toledo, Ohio.

TOLEDO

HEADQUARTERS FOR SCALES

When inquiring specify CP A3777—see handy form pages 2-3

Page 104

PRODUCTION

Glass Shielded Fluorescent Fixtures

A new glass-shielded fluorescent fixture is illustrated and described in two page bulletin. Made for four tubes and equipped with the latest approved auxiliaries, high efficiency with low intrinsic brightness is achieved by panels of specially selected ribbed, ceramic coated glass having 80% transmission factor and superior diffusing qualities. This new unit also features a simplified mounting plate, making installation for stem or flush-to-ceiling mounting easy and quick. While unit is at its best with glass panels, it may be used effectively without glass where desired. "Instalite" feature providing instantaneous starting and eliminating starters is optional at slight extra cost. Copies of bulletin on Spero CVG — 448 units on request.

SPERO ELECTRIC CORP., Dept. CP, Cleveland 19, Ohio.

When inquiring specify CP A3778—see handy form pages 2-3

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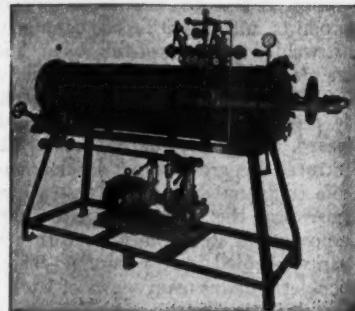
Proportional Current Input Controller

A recently developed new electric type controller combines a proportional current input controller and a recorder in one case. Designed to provide extremely accurate control of electrically heated furnaces and ovens, this new instrument provides on-and-off type control with the advantages of proportioning control. A rotating cam interrupts the flow of current to the heating coil or coils the duration of which is determined by the departure of the controlled temperature from the control point. Complete details are given in Bulletin PB1226 now available.

THE BRISTOL CO., Dept. CP, Waterbury 91, Conn.

When inquiring specify CP A3779—see handy form pages 2-3

Large Capacity Clarification With FULLY MECHANIZED CLEANING



LE VAL Porous Stone Filters

In POLY-FLO Models

A multiple arrangement of filterstones provides large capacity in the Poly-Flo Models of Le Val Filters. Rigidly supporting filter-aid, the porous filterstone prevents breakthrough, and positively assures brilliance of filtrate.

Cleaning by valve-controlled stripping sprays eliminates messy hand labor. Ranges of sizes and full description in new Bulletin F-103, available now.

LE VAL FILTERS
WHITING CORPORATION
District engineers in 26 principal cities
15667 Lathrop Ave. Harvey, Illinois

When inquiring specify CP A3780—see handy form pages 2-3

They Will PROVE to You How GOOD They Are

PUMPS "by Aurora"

No matter how exacting your requirements, there is a size and type of Aurora Centrifugal or Apco Turbine-Type Pump to handle it PERFECTLY. Products of experience. Built by exclusive makers of fine pumps.



Aurora Deep Well Turbines for all conditions—4" to 24"



Type AD Hor. Split Case, Two Stage Centrifugal
Type OD Hor. Split Case Double Suction Single Stage Centrifugal



NSA Aurora Centrifugal Sump Pump

Apco Turbine-Type Pumps The simplest of all pumps. Ideal for small capacity, high head duties. Silent, compact and lasting.



Type G M C Close-Coupled Centrifugal



Type GGU Side Suction Single Stage Centrifugal



APCO Horizontal Condensation Return Unit



APCO Single Stage Turbine-Type

Write for CONDENSED CATALOG M or See Our Catalog in SWEETS.

DISTRIBUTORS IN PRINCIPAL CITIES

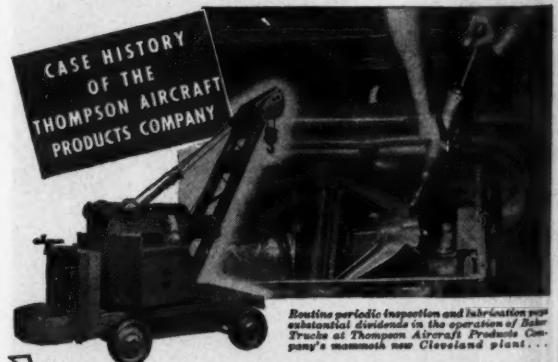


AURORA
PUMP COMPANY

62 Loucks Street, AURORA, ILLINOIS

When inquiring specify CP A3781—see handy form pages 2-3

"Our 11 BAKER TRUCKS have given us Continuous 24 hour service for 4 years"



Routine periodic inspection and lubrication pay substantial dividends in the operation of Baker Trucks at Thompson Aircraft Products Company's mammoth new Cleveland plant...

According to N. J. Shibley, Superintendent of Building and Property Maintenance at Thompson, their Baker Crane Truck and ten Baker Fork Trucks are as good as new after serving three shifts per day for nearly four years—the equivalent of 12 years of normal service. No truck has been overhauled, there have been only a few minor mechanical failures, and maintenance has been almost negligible.

Except for $\frac{1}{2}$ hr. per day, per truck for routine servicing and inspection and for a ten minute period between shifts when trucks are idle, they have been giving "round-the-clock" service for four years and, says Mr. Shibley, "if we continue to take good care of them, they should last indefinitely." That's Continuity!

Write for "Industrial Truck Care Pays You Dividends."

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Co.
2163 WEST 25TH STREET • • • CLEVELAND, OHIO

Baker INDUSTRIAL TRUCKS

When inquiring specify CP A3782—see handy form pages 2-3

CHEMICAL PREVIEW

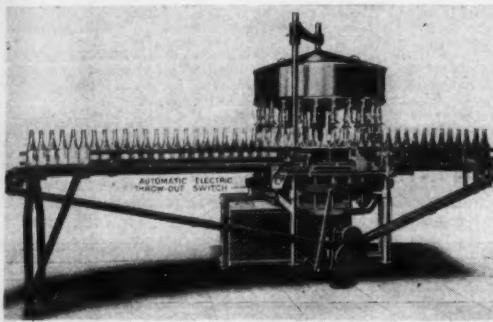
PRODUCTION

High Speed Liquid Filling Unit

*For any shape container, including taper types
for bottles, can jugs or paper cartons*

Uses — For filling any shaped container, taper shape included. The machine is designed for use with all types of liquids.

Features — Provision is made for automatic stopping and locking in position should anything happen to any one of the containers or to the crowner or closing machine. The tank is equipped with an automatic float control maintaining an established level of liquid during operation, for rapid, uniform filling. The cover is tight fitting and may be removed for cleaning by hand without the use of tools. Filling tubes are of patented construction, which cut off flow of liquid both at the top in the tank, also cut off at the bottom of the tube. This cut-off is automatic. These tubes can be made of Monel Metal, Stainless Steel or Brass triple silver plated.



Electric, automatic unit fills up to 160 containers per minute

Description — The filling range is from 2½ to 32 ounces capacity. Container mouths may range up to 3½ inches in diameter. Adjustments are quickly and easily made. Attendants need not be highly skilled operators. The capacity and filling speed depend on the size of the bottle and flow of material, ranging from 55 to 160 containers per minute. The machine is made in several models including small hand operated units up to large rotary, high speed power operated models. Complete details on "Asco-Dunn" filling machines on request.

**AMON-SCHULTE CO., Dept. CP, 319 Ohio River Blvd.,
(Emsworth) Pittsburgh 2, Pa.**

When inquiring specify CP A3783—see handy form pages 2-3.

Thread Plug & Thread Ring Gages

Eight page catalog, just released, gives specifications and prices regarding the "Thread Plug" and "Thread Ring" Gages manufactured by this company. In the design of these gages is featured a clearance below the roots of the threads that materially increases gage life . . . This clearance makes it practical to "set-down" or adjust Locke Gages to take full advantage of the adjustment provided in a ring gage. The crest of the set-plug will not contact the root diameter. The clearance makes it possible to lap the entire side of each thread from crest to root and it also acts as a receptacle for foreign particles which might otherwise become wedged between mating surfaces.

When inquiring specify CP A3784 — see handy form pages 2-3.

JANUARY-FEBRUARY, 1946

NEW

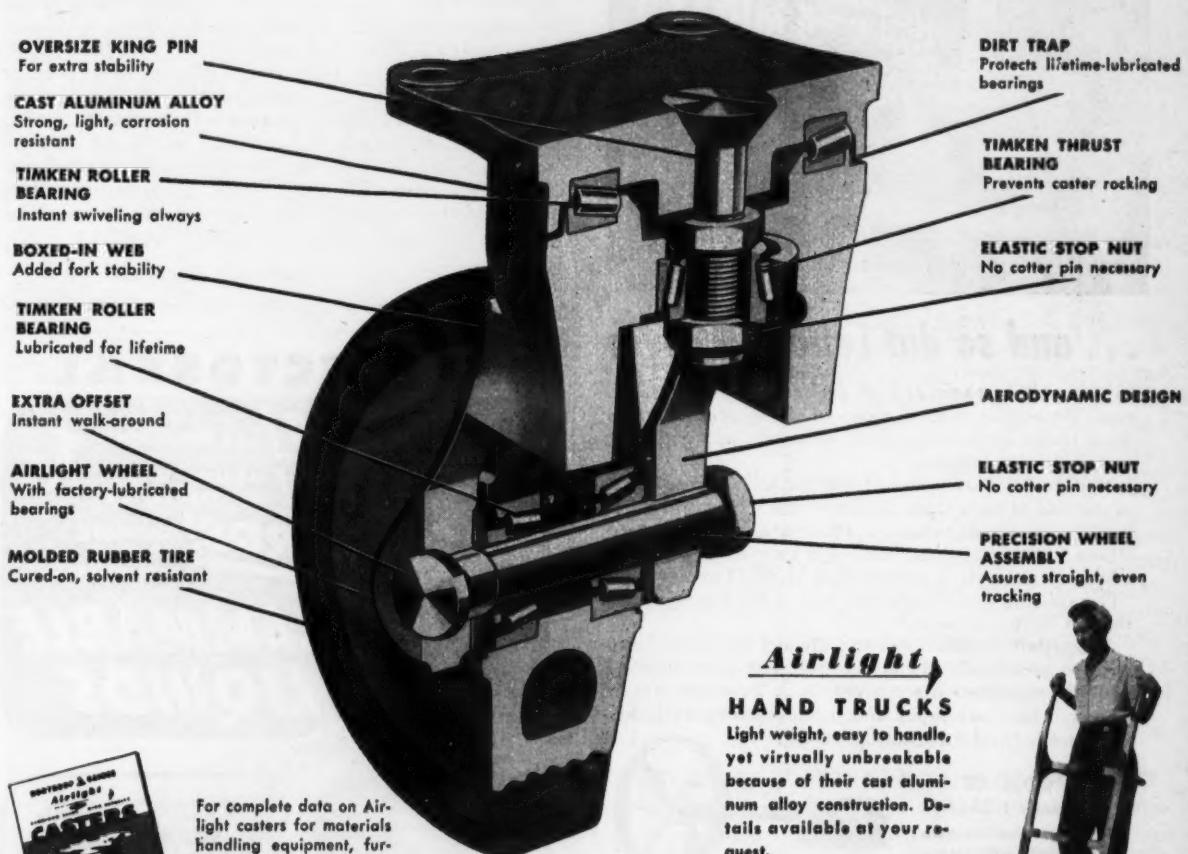
Airlight

ALUMINUM ALLOY CASTERS



Loads up to ten times rated wheel capacity ride smoothly, safely, and easily on Airlight casters using aircraft design and new high strength aluminum alloys developed by Northrop Gaines engineers. Timken Tapered Roller Bearings throughout assure instant swiveling with any load. Factory lubricated for thousands of miles of quiet, trouble-free operation.

Northrop Gaines Airlight wheels and casters are guaranteed for life against defective workmanship and materials.



For complete data on Air-light casters for materials handling equipment, furniture, appliances, and industrial products, write today for your free copy of new folder CB-1.

Airlight

HAND TRUCKS

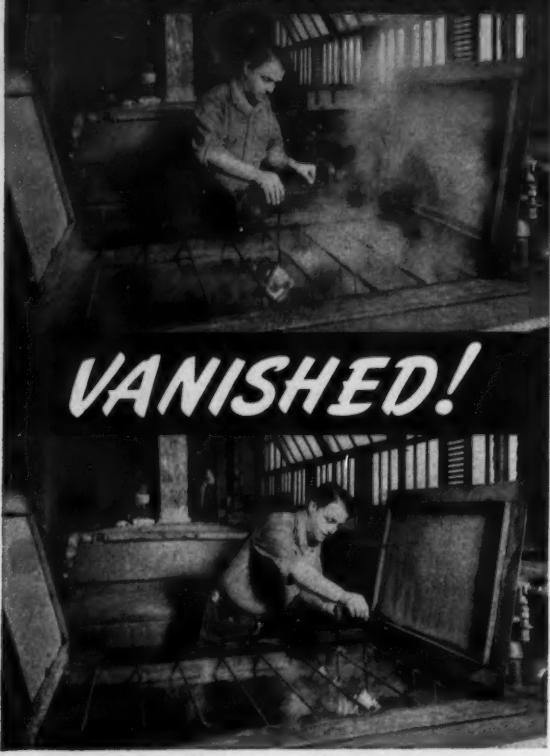
Light weight, easy to handle, yet virtually unbreakable because of their cast aluminum alloy construction. Details available at your request.



NORTHROP ▲ GAINES, INC.
1985 EAST 16TH STREET • LOS ANGELES 21, CALIFORNIA

-When inquiring specify CP A3785 . . . see information request blank, pgs. 2-3

These Fumes



VANISHED!

...and so did Labor Turnover

In this plating room at J. P. Seeburg Corp., Chicago, nine Propellair fans dispose of disagreeable fumes from tanks containing acids, cleaners, and greasing and etching solutions.

Vapors are drawn right from the surface into vents at the end of each tank, then upward into wood ducts leading to outside exhausts. Photographs show ventilation first "off," then "on." It's easy to understand why Superintendent of Finishing O. W. Towner says, "The efficiency of Propellair fans is far beyond anything I have ever seen."

Propellair ventilation can't always cut labor turnover to zero, as it did at Seeburg, but it can always provide maximum air movement at minimum horsepower. There are types and models for every industrial need. Send for Catalog 10-CP.

MODEL CE (Extended Shaft)

Easily installed in simple duct work with motor outside airstream.



PROPELLAIR
INC

"Moving Air Is Our Business"

SPRINGFIELD • OHIO

When inquiring specify CP A3786 — see handy form pages 2-3

Page 106

PRODUCTION

Cut-Off Register Control Insure Accurate Cut-Off In Fabricating Paper Products

An eight-page illustrated bulletin tells of eight outstanding advantages of a cut-off register control for paper fabricating and packaging machines. The device is an answer to problem of achieving accuracy and precision in the fabrication of paper products. In these operations the paper is usually supplied to the processing machine in a continuous strip. One of the functions of the machine is to cut the material to the proper length. Furthermore, this cut must be made at the proper point in relation to designs, trademarks and other printing on the web. Compensation must be made for several adverse factors if each consecutive cut is to be maintained in the correct position or register. The CR7505W cut-off register control systems make possible accurate register automatically by providing the required corrections. The control system can be supplied for most moving web machines. The systems are available in three general types. Two way control — correction through differential gear; two way control — correction obtained by compensating rolls; one way register control — correction through a differential gear. These cover the requirements of bag making, tuber and similar machines most of which are fed from large printed roll; for applications where web passes directly from printing press to cutting machine; intermittently fed machines which not only cut wrappers from roll but wrap the object to be supplied protective wrapping. Diagrams clearly illustrate these three types and their applications. Copies of this literature are available on request. Specify Number GEA 4731.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A3787 — see handy form pages 2-3

PROTECTOSEAL

PROTECTS! AGAINST FIRE OR EXPLOSION
SEALS! AGAINST LOSS BY EVAPORATION
SAFEGUARDS! HANDLING, STORING, AND DISPENSING
FLAMMABLE LIQUIDS



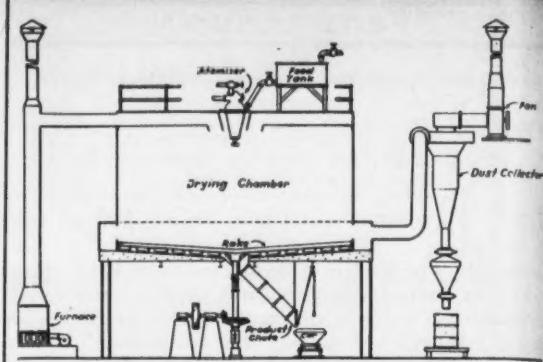
PROTECTOSEAL SUPPLY CANS

Super-safe and super-convenient with top quality rugged construction. Flexible spout puts liquid where you want it, in a trickle or a full stream, without spilling a drop. The modern, fire-safe, wasteless way to dispense gasoline, naphtha, solvents, and other dangerous fluids. Made in 3-gal. and 5-gal. sizes. Underwriters' approval. Write for literature.

THE PROTECTOSEAL CO.
1932 S. WESTERN AVE., CHICAGO 8, ILL.

PROTECTOSEAL

When inquiring specify CP A3788 — see handy form pages 2-3



"INSTANT DRYING"

A Simplified, Low-Cost System for Drying Chemicals

Real-life tests in industry have been demonstrating the advantages of the modern INSTANT DRYING unit. For instance, the manufacturer of a chemical widely used in industrial products brought it to the Instant Drying Laboratories for test. The results were astounding! Drying capacity was greatly expanded. The equipment was installed and the original unit has been in busy operation on a 24-hour schedule . . . with production even larger than the laboratory tests had shown! The special working features (patented) of INSTANT DRYING SYSTEMS are paying many dividends. This trouble-free and diligent worker demands only a minimum of labor and attention. Less power and a smaller connected load are required. Write to us on your drying problem. We shall answer your questions and send you detailed literature on the INSTANT DRYING unit.

INSTANT DRYING CORP. 101 Park Avenue New York 17

Testing and Research Laboratories at Poughkeepsie, N. Y.
Engineering by CLARK, MACMULLEN & RILEY, INC., NEW YORK

When inquiring specify CP A3789 — see handy form pages 2-3

EXACT WEIGHT Iron Horses for Heavy Duty Packaging . . .

If you are packaging chemical products in cartons, cans or bags from 25 lbs. to 150 lbs., you should know about the "Iron Horse." Rugged, accurate and built expressly for volume chemical operations this superior scale features: Short platter fall which eliminates much scale wear . . . long travel on the indicator for accuracy . . . Speed of operation . . . complete dashpot protection against foreign matter . . . working parts fully enclosed, important in dusty operations . . . weighing accuracy unaffected by out-of-level floors or machinery vibration . . . Capacity to 150 lbs. — sensitive to one ounce. Write for EXACT WEIGHT "Iron Horse" specifications and solve your weighing problems.



INDUSTRIAL PRECISION
Exact Weight Scales

THE EXACT WEIGHT SCALE COMPANY

31 W. FIFTH AVE.,
Dept. E, 783 YONGE ST.

When inquiring specify CP A3790 — see handy form pages 2-3

COLUMBUS 8, OHIO
Toronto, Canada

CHEMICAL PREVIEW

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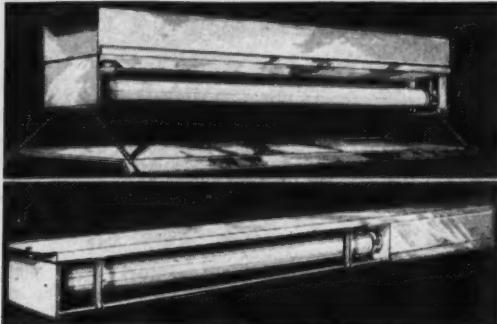
PRODUCTION

Ultra-Violet Air Disinfection

Combat air-borne bacteria; used to guard products during processing and in storage

Uses — Designed for service as an efficient bacteria destroying agent; combats air-borne bacteria; mold spores; other forms of fungi. Typical applications indicative of their wide range of service include use in sugar processing plants to disinfect sugar for canners use; in bakeries to prevent mold contamination; in cheese and wine plants to prevent contamination from the air; as sanitizing agent in bottling plants; in meat packing industry; in pharmaceutical production.

Features — Produce desirable rays of high intensity, providing ultra-violet radiation with large percent of rays



Top — shield reflector type; bottom — unit with lamp guards

within band possessing most effective wave lengths to destroy organisms. The G-E lamps used have been developed as sources of 2537 angstroms, 95% of the total, ultraviolet being of this wave length and used for specific bactericidal effects.

Description — These ultra-violet units utilize the General Electric Germicidal lamp. The lamps used are 18" (15 watts) or 36" (30 watts). Tubes are hot cathode, low voltage — practically no heat is generated by the lamps as power consumption is low. The complete line includes wall and pendant types, units for duct installation and also portable models. The units illustrated are; Top — model with shielding plate reflector for use in locations where a minimum requirement of lamp shielding directly beneath the lamp is necessary. Bottom — shows type for use where minimum depth is essential. It is sturdily constructed and provided with guards for lamp protection. Complete details on request concerning "Disinfectaire" lamps.

ART METAL CO., Dept. CP, 1800 E. 38th St., Cleveland, Ohio.

When inquiring specify CP A3791 — see handy form pages 2-3

*

Ion Exchange Demineralizers

The process of preparing clear water, the equivalent of commercially distilled, by ion exchange is described in recently issued bulletin. This new method of preparing clear water for process provides economies and improved products wherever there is need for mineral free water. The bulletin describes the process in detail and this material is accompanied by illustrations and chemical reactions of the ion exchange process. Copies of this literature — number is 4181 — are available upon request.

COCHRANE CORP., Dept. CP, 17th & Allegheny Ave., Philadelphia, Pa.

When inquiring specify CP A3792 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

Why pay more than you need



to get D-c. Power where you want it?

*Save \$25 to \$60 per Kilowatt of installed D-c. capacity with RELIANCE V*S DRIVE*

If in your plant—as in so many others—there is a need for supplying D-c. power for adjustable-speed operations, you are likely to find that *spot conversion of A-c. power* with the Reliance V*S Drive is the perfect answer. This is true for two reasons.

FIRST—V*S DRIVE saves you from \$25 to \$60 per kilowatt as compared to the cost of bringing in and applying D-c. power from some central source. These figures are based on a wide variety of applications.

SECOND—V*S DRIVE gives you unlimited flexibility of machine operation and application. This includes both automatic and manual control with smooth starting, stopping and reversing. Also, an infinite range of stepless speed changes, automatically maintained tension and many other specialized advantages.

Before installing D-c. power lines, learn what you can save with Reliance V*S Drive, which operates from your regular A-c. circuits. And see what V*S, with all-electric control, can do in improving quality and quantity of output, while reducing installation, operating and maintenance costs. Write today for the up-to-date story on spot conversion of A-c to D-c power.

RELIANCE ELECTRIC & ENGINEERING CO.
1067 Ivanhoe Road . . . Cleveland 10, Ohio

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit • Gary
Greenville • Houston • Kalamazoo • Kansas City • Knoxville • Los Angeles
Milwaukee • Minneapolis • New Orleans • New York • Philadelphia • Pittsburgh
Portland, Ore. • Rockford, Ill. • St. Louis • San Francisco • Seattle • Syracuse
Tampa • Washington, D.C.

RELIANCE ^{A-C} _{D-C} MOTORS

"Motor-Drive is More Than Power"

When inquiring specify CP A3793 . . . see information request blank, pgs. 2-3

Having trouble finding space for DUST RECOVERY EQUIPMENT?

THREE & MULTICLONE SPACE-SAVING ADVANTAGES MAY BE THE ANSWERS!

MULTICLONE Collectors offer unusual advantages in compactness and adaptability to the space limitations of industrial plants. They save space four ways...

1. Greater Compactness: The MULTICLONE unit itself requires less space—as little as 1/6 the floor space of comparable equipment.

2. Maximum Flexibility: MULTICLONE inlet and outlet hook-ups are readily adaptable to meet individual requirements. Side-inlet side-outlet... side-inlet top-outlet... and even top-inlet side-outlet construction is available for fitting cramped spaces.



When inquiring specify CP A3794—see handy form pages 2-3



PATENT APPLIED FOR

Better than your insurance policy—protect your Equipment before an accident

HERE is definite concrete protection before the accident happens... An insurance policy takes care of you after the accident and helps you start anew... The Eriez Non Electric Magnetic Separator will pull tramp iron from your conveyor units or chutes, cleaning the material thoroughly of ferrous metallic objects whether your electric current is on or off... the Eriez works all the time. A permanent magnet, the first cost is the Eriez only cost. Write for Bulletin 101 with full installation particulars.

- 1 Easy to install - light . . . compact.
- 2 A recognized safety device . . . Prevents fires. Magnet never sparks.
- 3 Fully guaranteed a permanent guard to protect processing equipment.

ADDRESS: 16 EAST 12TH STREET

ERIEZ MANUFACTURING COMPANY
Eric Pennsylvania

When inquiring specify CP A3795—see handy form pages 2-3

PRODUCTION

Welded Mechanical Tubing in Sizes 6-1/2 In. OD, Walls .028-.250 In.

Facilities include selection of cold drawn tubing, electric; butt weld and many types of fabrication; bending, flaring, etc.

Uses — Recently completed facilities of this organization make available a selection of cold drawn, butt weld, and welded tubing to meet any practical need.

Features — Ordinarily the production of welded mechanical tubing ends at the 4½ inch size but the tubing offered has an extensive size range up to and including 6½ inch O. D. walls from .028 to .250 inch at proportionately nominal costs.

Description — Mechanical steel and alloy irrigation tubing has been under way for some months. Sizes $\frac{3}{8}$ inch to 6½ inch. By means of facilities of associates cold drawn tubing, electrical and butt weld, and any type of fabrication possible with steel tubing, including threading, tapping, milling, press work, and electroplating in zinc, copper, chromium, cadmium, brass, etc. to close tolerances. Complete information concerning products and service as they pertain to specific requirements on request.

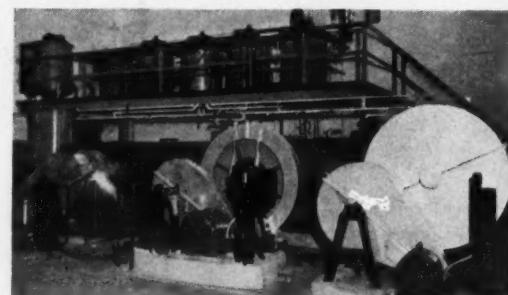
UNITED TUBE CORP., Dept. CP, 2134 W. 53rd St., Cleveland, Ohio.

When inquiring specify CP A3796—see handy form pages 2-3

Latex Foam Products to Find Wide Consumer Applications

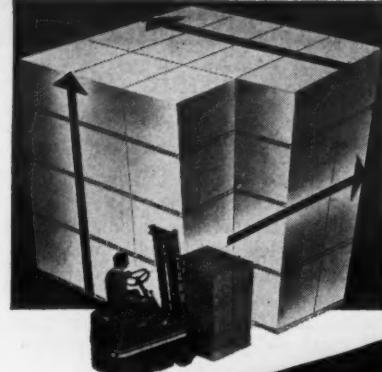
Production soon under way at expanded plant of major producer

Uses — A new and varied line of latex foam products for consumer use is to be produced with the machinery illustrated in the accompanying views and on the cover as well as with much other additional equipment. The selection includes mattresses, automobile seats and railroad seating, foam rubber slabs for use in upholstered furniture, bar stool tops, chair seats.



Ball mills, dispensing tanks used in the production of latex foam products.

Description — This line of consumer products made from latex foam is a recent addition to the organization's many industrial products, including conveyor and transmission belting and industrial hose and automotive products such as gaskets, pad bumpers, etc. The view on the cover shows frothing machines which are used to inject air into the liquid latex and give the product its porous qualities. The two men in the picture are installing a whip on the frothing machine. In the top view of the two pictures accompanying this article are to be seen ball mills for grind-



THREE DIMENSIONAL USE OF SPACE THRU *the* TIERING SYSTEM!

CLARK Fork Trucks UTILIZE ALL FACTORS IN MATERIAL HANDLING

- High stacking utilizes "ceiling heights" or "air rights."
- Speed in handling utilizes time.
- 24 hour a day performance utilizes round the clock availability.
- Low cost operation and long life utilize savings on investment.
- Clark Fork Truck performance utilizes all factors in material handling.

CLARK TRUCKTRACTOR, BATTLE CREEK, MICHIGAN

When inquiring specify CP A3797—see handy form pages 2-3

OWEN BUCKETS

Popular in the Chemical Industry



OWEN BUCKET CO.

Cleveland, Ohio • Pittsburgh, Pa. • Philadelphia

Chicago • Berkeley, Calif.

A MOUTHFUL AT EVERY BITE

When inquiring specify CP A3798—see handy form pages 2-3

CHEMICAL PREVIEW

you rugged friction closed eration parts ized form

See 206
district
2nd.

NEVER

V

NETTCO

Agitating Equipment

TROUBLE FREE

With NETTCO Agitating Equipment, you can relax: Trouble-free performance is built into these rugged units. New and improved NETTCO mixers, with anti-friction bearings, hardened gears, splash lubrication and enclosed housings, are now available for continuous process operations and new manufacturing needs. NETTCO standardized parts and units will produce a wide range of highly specialized stirring equipment for many industries. Write for information.

NETTCO Drive No. 6
Fully enclosed.

One of many NETTCO drives.



See us in Booth No. 50 at the 20th Exposition of Chemical Industries February 25th to March 2nd.

NEW ENGLAND TANK & TOWER CO.
93 Tilston Street
Everett 49, Mass.

When inquiring specify CP A3799 — see handy form pages 2-3

NOW AVAILABLE FOR IMMEDIATE SHIPMENT FLOOR MATTING OF ALL KINDS FOR

- NEO-CORD COUNTER-TRED MATTING
- AMERIFLEX FLEXIBLE HARD WOOD LINK MATTING
- The links are held on galvanized steel springwire framework. Lies flat. Follows contour of the floor. Beveled edges. Can be rolled or folded.
- AMERITRED SOLID PLASTIC FRICTION MATTING
- For ramps, stairs, landing, shower and locker rooms, entrances, in front and back of counters. Good scrapeage. Lies flat. Comes in sheets 29" x 62" x 9/64". Can be laid side by side for larger areas, or trimmed for smaller areas.
- AMERICAN COUNTER-TRED MATTING
- 1/8" thick, 24" wide, any length. Used in lavatories, refrigerators, shower and locker rooms, and behind serving counters. Ridged bottom affords aeration and drainage.
- EZY-RUG RUBBER LINK MATTING
- Traps all dirt at the door, keeps it out of sight and prevents tracking through the building, reducing cleaning costs and frequency of redecorating necessitated by dirt whirled into the air by the heating system. Modernizes and beautifies entrances, lobbies and corridors. Available with lettering. Beveled edge. Will not curl. Reversible, its durability is doubled.

WRITE FOR PRICES AND FOLDER
"A Mat for Every Purpose"

AMERICAN MAT CORPORATION
"America's Largest Matting Specialists"
1798 Adams St., Toledo 2, Ohio

When inquiring specify CP A3800 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

PRODUCTION



Vulcanizers for curing latex foam products.

ing chemicals which are to be added to the liquid latex before other manufacturing processes begin. On the balcony in the background are compound storage tanks for dispensing raw materials. The vulcanizers in the lower picture are used for curing latex foam products after they have been molded into shape. A leading number in the latex foam line is the "Restfoam" mattress. Information on latex foam products on request.

HEWITT RUBBER CORP., Dept. CP, Buffalo 5, N. Y.

When inquiring specify CP A3801 — see handy form pages 2-3



Centrifugally Controlled Engine Governor

A four page catalog besides completely describing a new model of governor that is centrifugally controlled, includes installation instructions and parts lists is available on request. The company provides either vacuum or centrifugal type of internal combustion engine control and packages complete are available for the more popular makes of engines used for transportation and industrial purposes.

MONARCH GOVERNOR CO., Dept. CP, 1832 W. Bethune Ave., Detroit 6, Mich.

When inquiring specify CP A3802 — see handy form pages 2-3



Electrical Equipment Meets Plant Problems of Expansion, Power, Control Product Testing

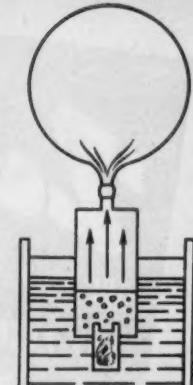
"Electric Equipment For Co-ordinating All Processing Operations in the Food Industry" is the title of a comprehensive catalog. A foreword on the cover emphasizes how the instruments and equipment described and illustrated therein has served in such applications and installations as: Load-center and wiring distribution equipment for quickly extending electrical service into new structures or existing overloaded structures; Motors and Controls selected in proper type and rating to drive machinery under all service conditions; Refrigerating and Air-Conditioning equipment for use in processing and preserving food materials; X-Ray Equipment for maintaining thorough inspection under fastest continuous production methods. Motor section shows a complete selection including "tri-clad" constant speed motors. Type K is normal torque, normal-slip motor with low starting slip characteristics. Type KG is high-starting-torque, low-slip motor for conveyors, compressors, etc. KR is high starting-torque, high slip electrical design very useful where a pulsating fly wheel load, or frequent starting and reversing duty is encountered. Other sections are devoted to starters, heating units, laboratory items, timing devices and refrigerant condensing units. Copies of this catalog Number 4322 on request.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A3803 — see handy form pages 2-3

CANNED HYDROGEN

A few holes are punched in the top of the small Metal Hydrides can of Calcium Hydride and the whole submerged in water. Hydrogen is collected in a rubber envelope which acts as a simple gasometer to supply hydrogen at desired rate.



Developed by Metal Hydrides for use in the field by the U. S. Army Signal Corps, canned Calcium Hydride charges giving 6 to 24 cubic feet of hydrogen are now available for civilian use. Ideal for laboratory operations, Metal Hydrides' Canned Hydrogen is a fool-proof form of supply that can be kept conveniently on your stock room shelf. Order direct from the factory.

METAL HYDRIDES INCORPORATED

HYDRIMET PRODUCTS • TITANIUM HYDROGEN • TITANIUM POWDER • TITANIUM INGOTS • ZIRCONIUM HYDROGEN • ZIRCONIUM POWDER • ZIRCONIUM INGOTS • METAL HYDROGEN • COPPER-TITANIUM • COPPER-ZIRCONIUM • BERYLLIUM-HYDROGEN • TITANIUM HYDROGEN • COPPER-TITANIUM HYDROGEN

Helping Industry to Put
the Right Metal in the Right Place
20 Congress Street, Beverly, Massachusetts

When inquiring specify CP A3804 — see handy form pages 2-3



with Surety SURESEAL SYNTHETIC RUBBER GLOVES

Nature's defenses weren't intended to withstand acids, oils, solvents used in modern industry. Skin protection ... complete, comfortable, and work-acceptable ... is assured by hard-to-snag, abrasion-resistant Surety Turn-Cuffs. They're made of better synthetic rubber with 14 times service life of natural rubber, other synthetics. Patented design for maximum safety when working in liquids. Turn-Cuff up stops fluids running down arms. Cuff down odds two inches welcome safeguard. . . Get Surety for SAFETY!

Send for your Surety Glove Selector — takes the guess work out of glove buying. Do it now!



THE Surety RUBBER COMPANY

CARRICKTON, OHIO

When inquiring specify CP A3805 — see handy form pages 2-3



J&C



If your manufacturing process requires the dewatering of any crystalline, granular or fibrous slurries, you will want to know more about the giant Zenith Pulp Press. This continuous press dewateres up to fifteen tons of pulp in one hour. Pressure is transmitted (see cut away view) by means of a slowly revolving spiral-bladed spindle. Because of its built-in heating system and design of its walls, draining is doubly efficient. For complete facts write today to:

JACKSON & CHURCH CO., SAGINAW, MICHIGAN

When inquiring specify CP A3806 — see handy form pages 2-3

Page 110

PRODUCTION

Non-Breakable Steel Stools

In five heights and forty different models

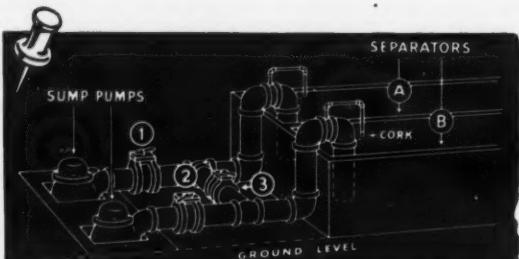


26 inch stool

Uses — These steel stools are designed to meet a wide range of industrial requirements for units that meet posture needs of workers engaged in tiring duties. **Features** — They are available in five heights and forty models. The twenty-six inch stool pictured here (Number 1226) is equipped with an adjustable back and pressed wood seat (over steel) and steel feet. The back support may be attached to all models. The stool offers various features including all-welded, non-breakable construction; unusually large, comfortable 14 inch wide seat, with rounded corners; strong channel brace which provides a comfortable foot rest located a uniform distance below the seat from all heights; steel glide type feet. The many models offer a wide selection to meet the many posture needs to be encountered in various plants and in widely varying production, testing operations. Complete details on this line as well as other types of stools is available upon request.

LYON METAL PRODUCTS, INC., Dept CP, Aurora, Ill.

When inquiring specify CP A3807 — see handy form pages 2-3



How to Control Sump Pump Discharge

The plant sewer lines drain into the sump where the waste is pumped into the concrete separators through R-S Valves Nos. 1 and 2. Valve 3 in the connecting line provides a means of cleaning either A or B separators, as the 3/4-inch siphon breakers can be plugged with corks and the fluid syphoned from the separators to facilitate cleaning operations. The three 16-inch, 15-pound valves have 25-pound American Standard flanged drilling and are hand lever operated.

For fast, easy control and shut-off of volume and pressure, even under high pressure and temperature conditions, the R-S Butterfly Valve has no equal.

Prompt quotation furnished on receipt of installation data. Write for Catalog No. 14-B.

VALVE DIVISION
R-S PRODUCTS CORPORATION • 4531 GERMANTOWN AVE., PHILA. 44, PA.



When inquiring specify CP A3808 — see handy form pages 2-3

HOW TO IMPROVE THESE PROCESSES

Here are the many factors to consider in selecting the right kind of equipment for filtering and other processing, for which Shriver Filter Presses are particularly well suited. The book gives design and construction details of various filter press types; a quick, graphic method of determining equipment costs and other practical suggestions for chemists, engineers and operating men concerned with improving processes and methods.



Shriver Filter Presses are versatile, easily adaptable for any or all of the processes listed above; they are flexible as to materials of construction and capacity; they can be operated at any pressure or temperature. They can do your filtration job better — more economically.

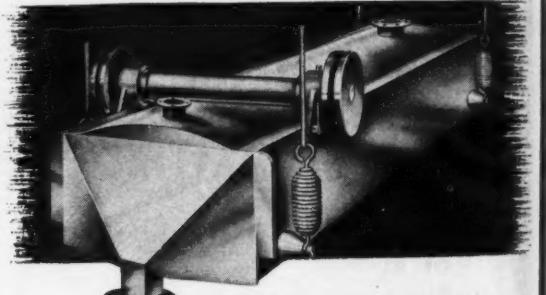
Write for this free catalog. Also visit our exhibit at Booth 12, Chemical Exposition.

T. SHRIVER & COMPANY, Inc.

846 Hamilton St.

Harrison, N. J.

When inquiring specify CP A3809 — see handy form pages 2-3



CENTRIFUGE SENTRIES

ROBINS Hydrex Screens

Robins Job-Engineered screens stand guard in production lines to screen out coarse materials that ordinarily clog centrifuges and filters to the point where they must be cleaned.

For help in handling your separation problems, write to Robins! We will gladly furnish complete information on Hydrex Screens or other Robins materials handling machinery.

ROBINS

CONVEYORS INCORPORATED

PASSAIC, NEW JERSEY

DIVISION OF HEWITT RUBBER CORPORATION

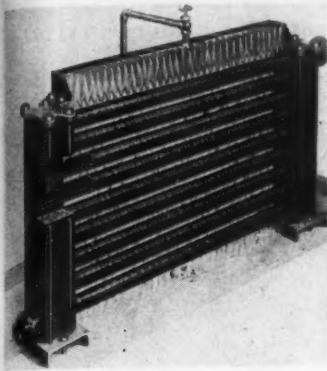
When inquiring specify CP A3810 — see handy form pages 2-3

CHEMICAL PREVIEW

PRODUCTION

Sectional Cascade Coolers

Resist corrosion, thermal shock, scale formation



Cooler for caustic liquids, gases

would stack office filing cases.

Description — A complete cooler assembly is quickly and easily erected from four standard items on five pipe sizes and is adaptable to a wide range of process requirements. Properties of "Karbate" used in construction provides corrosion resistance. Minor changes in the method of applying the cooling water permits handling gases well in excess of the temperature limits previously mentioned. Nine feet long single "Karbate" cooler sections are stacked to form a series flow vertical bank and are held in place by steel tie rod assemblies which form a rigid supporting structure. Gaskets are furnished in either synthetic rubber or asbestos as required. A standard steel water distributor is mounted on the tie rod assemblies and can be accurately adjusted to assure uniform cooling water distribution over the pipe. The compact construction offers close pipe spacing and eliminates the necessity of redistribution baffles. Maximum effective external surface areas of approximately 120 square feet are available in all of the five sizes in the maximum recommended cooler height of six feet. The complete cooler assembly is easily dismantled for the addition or replacement of interchangeable sections.

NATIONAL CARBON CO., INC., Dept. CP, 30 E. 42nd St., New York, N. Y.

When inquiring specify CP A3811 — see handy form pages 2-3

*

Compound Melters, Dispensing Pots, Tanks for Waxes and Compounds

Heating or melting equipment for wax or compounds is described in a four page, illustrated bulletin. It describes and explains the "Sta-Warm" basic design for uniform heating. Multiple circuits scientifically arranged cover every square inch of the surface of compound containers. This offers uniform heat on side walls and bottom of tanks, kettles, and pots. Included in the equipment shown are compound melters for melting and maintaining pitch, asphalt, waxes, oils, marine glue, etc. Standard units are of welded steel in 5, 10, 15, 25, and 50 gallon capacities. Wax dispensing pots and tanks and a wax dropper for application to the work are also described and illustrated in detail. Copies of Bulletin 038W on request.

STA-WARM ELECTRIC CO., Dept. CP, Ravenna, Ohio.

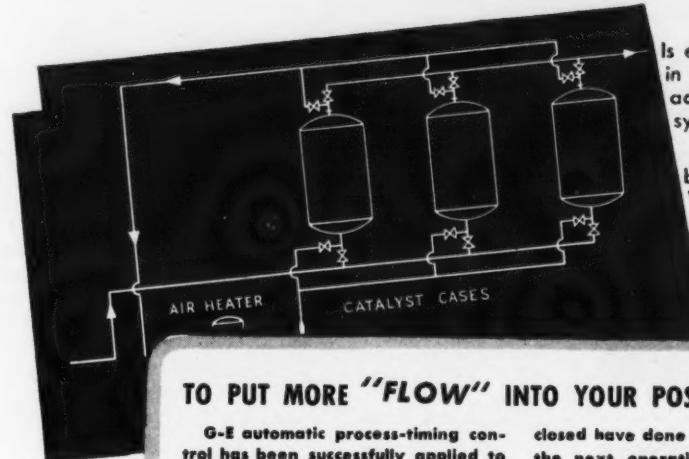
When inquiring specify CP A3812 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

AS MANY AS 900 OPERATIONS...

Automatically Timed with a

G-E PROCESS CONTROL SYSTEM

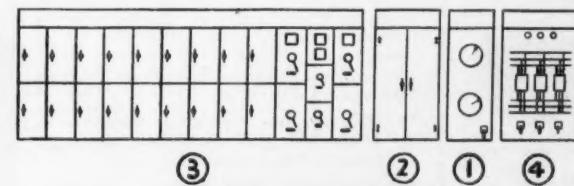


TO PUT MORE "FLOW" INTO YOUR POSTWAR CHARTS

G-E automatic process-timing control has been successfully applied to many processes, such as the catalytic petroleum-cracking process diagrammed above. It maintains automatic control over complex operations in three ways. First, it opens valves or similar process devices at preset intervals. Second, it makes sure that valves which should have opened or

closed have done so before it allows the next operation to take place. Third, it automatically rings an alarm and shuts down the timer if the preceding control operation has not been successfully completed. In other words, this G-E process-timing system helps to make your process more automatic and to flow more smoothly.

General Electric realizes that there are many chemical processes where automatic process-timing could improve product quality, reduce waste, and speed production. Is yours such a process? Why not discuss the advantages, as they apply to your process on an over-all functional basis, with a G-E sales engineer? Apparatus Department, General Electric Company, Schenectady 5, N. Y.



Automatic Process-Timing System

A typical G-E automatic process-timing control system consists of (1) a master sequence timer; (2) a group of interlocks and relays to prevent false operation; (3) a Cabinetrol unit to house

individual valve motor controls; (4) an operator's control board which provides a "picture" of the process at any one time. Complete details are in Bulletin GEA-4181.



GENERAL ELECTRIC

When inquiring specify CP A3813 . . . see information request blank, pgs. 2-3

DUST COLLECTION by a unit-type collector

One self-contained unit, Pangborn's new "CK", occupies minimum floor space... is adaptable to a variety of field conditions... is easily accessible. Minimum piping and installation expense.



PANGBORN

World's Largest Manufacturer of Dust Control
and Blast Cleaning Equipment

When inquiring specify CP A3814 — see handy form pages 2-3



Threaded slide valve;
pull handle control;
also flanged and with
lever, hand wheel or
chain wheel control.



Flanged butterfly valve;
hand wheel control;
also lever or chain
wheel manual or any
automatic control.



Flanged water butterfly
valve, lever control;
also any other
manual or automatic
control.

Easier Control of Gases • Liquids Semi-Fluids . . .

For working pressures to 25 p.s.i. in the control of process air, gases, liquids and even solids, Rockwell Valves provide quick, easy flow regulation and quick shut-off with minimum pressure drop through the valve.

Built of any metal or rubber-coated, simple in design and construction, they assure long, efficient service even under difficult operating conditions. They are available in

- Slide Type — threaded or flanged — 1" to 20" pipe sizes; pull handle, lever or wheel control.
- "Kwikleen" Slide Type — flanged — 4" to 16", controls as above; for gases containing solids or dirt which clogs valves; easy to blow out dirt.
- Butterfly Valves — threaded or flanged — 1" to 48", all manual controls and any motor-operated, solenoid, hydraulic, air diaphragm or other automatic controls.

Write for Catalog 406-R

ROCKWELL VALVES — SLIDE AND BUTTERFLY TYPES —

W. S. ROCKWELL COMPANY
220 ELIOT STREET • FAIRFIELD, CONN.

When inquiring specify CP A3815 — see handy form pages 2-3

Page 112

PRODUCTION

Inverted Bucket Type Steam Traps

A recently issued catalog contains information on a new series of industrial steam traps of the inverted bucket type. Features include a new scientifically designed orifice throat which gives up to 25% greater capacity, avoids turbulence, and minimizes choking caused by flash steam. The screwed-in valve seat is renewable for easy servicing. A new lever construction gives quick, full open without dribbling. The straight-through inlet-outlet connections have been relocated to replace the trap below the inlet pipe at all times. The traps are available in three sizes up to 1 1/4 inches in both standard and thermal design. Catalog Number 67 on request.

STRONG, CARLISLE & HAMMOND CO., Dept. CP, 1392 W. 3rd St., Cleveland, Ohio.

When inquiring specify CP A3816 — see handy form pages 2-3

Condenser Tube Protectors

A new bulletin which completely describes the Condenser Tube Protectors has just been issued. These condenser tube protectors were developed after recognition of the fact that most tube failures due to thinning and erosion occur at the inlet ends of the tubes. The Tube Protector is made of a special plastic material, is highly resistant to abrasion, and armors the mouth and entrance section of the tube itself. Service tests show how JOHN CRANE Condenser Tube Protectors prolong tube life and lessen the chances of time-consuming shutdowns. This bulletin is fully illustrated with typical installations and sectional views. Copies are available from the manufacturer on request.

JOHN CRANE PACKING CO., Dept. CP, 1821 Cuyler Ave., Chicago 13, Ill.

When inquiring specify CP A3817 — see handy form pages 2-3



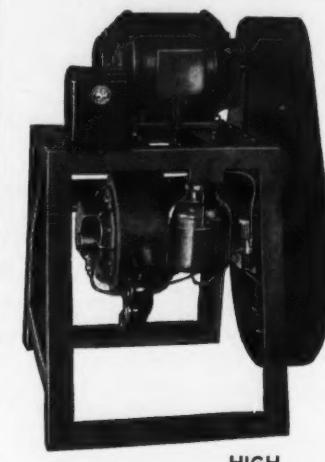
Let Cardux fire protection specialists study your hazards in the light of experience gained in engineering fire extinguishing systems now protecting many of the most severe hazards in American industry. The features that have made Cardux Systems so outstanding are many. By broadening the performance scope of carbon dioxide applied in pounds or tons, Cardux makes this non-damaging extinguishing medium equally effective for large or small hazards . . . gives it increased cooling effect; and uniform extinguishing characteristics regardless of atmospheric conditions. Write for Bulletin No. 1616.

CARDUX CORPORATION • Bell Building, Chicago 1, Ill.

When inquiring specify CP A3818 — see handy form pages 2-3

ROTARY LAMMERT QUIET VACUUM PUMPS

VACUUM TO 0.02 M.M. BAR. 3-580 C.F.M.



Investigate!
MODEL SWMF.

NEW!
Continuous
Self
Purging
Principle

Expels the
Contaminating
Influence

LAMMERT & MANN CO.
215-21 N. WOOD ST. CHICAGO 12, ILL.

A HALF CENTURY
OF SERVICE
TO SCIENCE AND INDUSTRY

When inquiring specify CP A3819 — see handy form pages 2-3

IMMEDIATE DELIVERY

Sight Gravity Feed Oiler

- Can Be Taken Apart To Clean
- Unbreakable "Lucite" Reservoir
- Unbreakable Sight in Shank



OIL-RITE'S completely unbreakable oiler is reliable and sturdy. Easy to fill . . . easy to watch. Protect your machinery against bearing failure. Capacity 5/8 oz. to 1 1/2 qts.

Order from your dealer, or
write for catalog.

OIL-RITE CORPORATION

3461 South 13th St. Milwaukee 7, Wis.

Specialists in Industrial Lubricating Equipment. Constant Level Oilers—Loose Pulley—Spindle Oilers—Oil Cups

When inquiring specify CP A3820 — see handy form pages 2-3

CHEMICAL PREVIEW

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Chicago,
Chicago,

JANU

PRODUCTION

Fibre Container with Metal Ends For Quick-Frozen Foods

Economical, sturdy; provides protection against dehydration; leakage; loss of flavor



Labels can be lithographed directly on fibre bodies

Uses — These fibre containers have been especially designed for packaging frozen foods.

Features — Runs on a number of test packs indicate that savings in time and labor can be effected by using a fibre can with metal ends together with automatic filling and closing methods.

Description — In the development of these new cartons production in commercial volume is not yet under way and four types of containers have been under consideration. A fibre bodied, flat and oblong container with metal ends seems to offer the greatest advantages. High speed equipment for filling these oblong containers have been developed by machinery manufacturers and in the near future will be available to packers of frozen foods. Continental closing machines to close these frozen food packages will also be available. This new type package is rigid and sturdy and offers maximum protection against dehydration, oxidation, loss of flavor, acquisition of off-flavors, leakage and loss of vitamins. It is most adaptable to automatic filling and closing operations. Another point in favor of these oblong containers with metal ends is the fact that their shape permits economical use of refrigerator space, a feature appreciated by dealers and consumers. Further information concerning fibre packages for quick-frozen foods on request.

CONTINENTAL CAN CO., Dept CP, 100 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A3821 — see handy form pages 2-3



Automatic Control of Glass Furnaces

"Automatic Control for the Glass Industry" is the subject of a new twelve page illustrated bulletin which presents a highly practical general treatment of the important aspects of this very comprehensive matter. The text and illustrations show how glass makers are freeing operations of the complications of changing conditions, materials, weather influence and the human element. The bulletin divides the discussion into three major parts under the headings of (1) Furnace Pressure Draft Control, (2) Combustion Control and (3) Heat Input Control. Each is dealt with individually and also in relation to the others. Explained in detail is the Jet Pipe which is the heart of the regulator. The many drawings and diagrams contribute to the simplicity of the presentation. Typical installation on a modern glass tank is shown in a large size detailed drawing. Copies of bulletin Number 124 on request.

ASKANIA REGULATOR CO., Dept. CP, 1603 S. Michigan Ave., Chicago, Ill.

When inquiring specify CP A3822 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946



Stuffing box success records



DURAMETALLIC PRODUCTS . . .

- FLEXIBLE METALLIC PACKING
- PLASTIC PACKING
- MECHANICAL SEALING DEVICES
- OIL PRESSURE SYSTEMS
- FLEXIBLE HANDLED PACKING TOOLS

DURAMETALLIC

KALAMAZOO



CORPORATION

MICHIGAN

CHICAGO • DALLAS • DETROIT • HUNTINGTON, W. VA. • HOUSTON • KANSAS CITY, MO. • LOS ANGELES • MONTREAL
NEWARK • NEW ORLEANS • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • TULSA • YOUNGSTOWN, O.

When inquiring specify CP A3823 . . . see information request blank, pgs. 2-3

Northern HI-LIFT ELECTRIC HOISTS

168-Hour Week Workers

They stay on the job because they have the strength and construction quality. One piece welded frames—turned and ground shafts—large size roller bearings—machine cut heat treated gearing—splash lubrication. All parts readily accessible for maintenance that usually isn't needed. Hi-Lift feature makes better use of headroom—capacities 1000 lbs. to 15 tons.

**Write for
Literature**

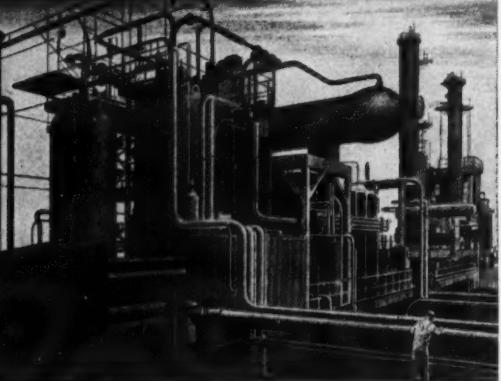


NORTHERN ENGINEERING WORKS, 2605 Atwater St., Detroit, Mich.

CRANES Northern HOISTS

When inquiring specify CP A3824—see handy form pages 2-3

Because
They Resist
**HCl
and
AlCl₃**



**HASTELLOY Alloys are used in
Aviation Gasoline Isomerization Plants**

HASTELLOY ALLOYS Offer All These Advantages:

1. Resistance to hydrochloric acid, cold or hot, dilute or concentrated.
2. Resistance to sulfuric acid, cold or hot, dilute or concentrated.
3. Resistance to oxidizing agents such as ferric chloride and wet chlorine.
4. Resistance to abrasion and wear.
5. High strength and toughness.
6. Variety of forms—castings, welding rod, mill forms*, or fabricated equipment.

*Not in HASTELLOY Alloy D



HIGH-STRENGTH NICKEL-BASE ALLOYS FOR CORROSION RESISTANCE

The word "Hastelloy" is a registered trade-mark of Haynes Stellite Company.

When inquiring specify CP A3825 . . . see information request blank, pgs. 2-3

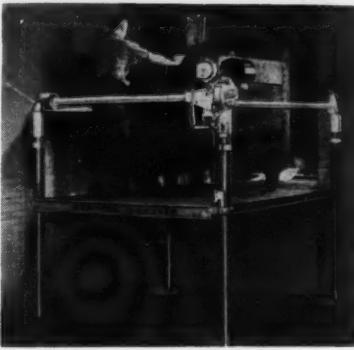
PRODUCTION

Electric Lift Unit Installs Above Floor Level

Brake and governor assures safe operation; travel to full height or floor level automatically controlled

Uses — Raising finished goods from floor level to loading platform, from shipping floor to motor truck, lowering materials from car to floor. Applicable to wide range of handling problems where speed and safety are important. **Features** — Easily and quickly installed inside or outside on upper floors or over basement. Shipped knocked down, the average installation takes but a few hours.

Description — The basic safety feature of this equipment is the hoisting and control mechanism. The fully enclosed power unit and motor are positive under all operating conditions.



Lift unit 6000 lb. capacity

A free wheel brake controls the lowering of the platform at a steady predetermined speed. A centrifugal governor is always present as an emergency safety brake. Control of the platform travel to full height or to floor level is governed by an automatic travelling nut and flat cam mechanism that stops the motor automatically at top height and floor level. Stops at intermediate heights are manually controlled by switch. Complete details on the "Service Leveler" in various models, and featuring accessories that aid adaptation to individual special requirements on request.

SERVICE CASTER & TRUCK DIV. (Domestic Industries, Inc.), Dept. CP, Albion, Mich.

When inquiring specify CP A3826—see handy form pages 2-3

Motorized Truck With Safety Rated Capacity of 4000 Pounds

Finger-tip control feature for easy maneuvering of heaviest loads forward or back to destination



Motorized Truck with stationary bed.

Uses — This motorized load-carrying truck was especially designed and built to carry heavy motors and generators in the plant of a prominent electric company. Similar trucks for other organizations are now being built.

Features — Finger-tip control permits easy maneuvering of heaviest loads forward or back to destination.

This is an exclusive feature which provides easy starting and stopping. Finger-tip control consists of two buttons on the handle, one for forward motion and one for reverse, operating in conjunction with an "Allen-Bradley" controller unit. Also has dynamic brake control. **Description** — Speed: — 312 feet per minute, forward or reverse when empty; 220 feet when loaded. Power is generated by heavy-duty batteries which operation of the trucks in actual service indicates 10-20 hours capacity under maximum load without recharging. Drive — 12 volt enclosed continuous rating series motor with 14.5 to 1 reduction, giving a high starting torque without excessive heating. Gears — rear drive transmission through sets of spiral bevel and spur gears. All gears alloy steel, heat treated, with ball bearings and operating in oil bath. Chargers — batteries can be charged on regular equipment already available in plants using batteries, or rectifier can be furnished for overnight charging at low cost. Frame — all-steel construction with parts standardized and interchangeable for low cost. Frame is heavily re-inforced with ample factor of safety at maximum load. Welding is limited to low stressed parts and where accessibility does not increase maintenance costs. Important wearing points are hardened. Wheels — "Jewell Alloy" steel castings with sealed ball bearings on alloy steel axles. Rubber or other protective thread wheels as desired. Front wheel load taken on Timken thrust bearings in steel column. Further details on request.

LIFT TRUCKS, INC., Dept. CP, 2425 Spring Grove Ave., Cincinnati, Ohio.

When inquiring specify CP A3827—see handy form pages 2-3

CHEMICAL PREVIEW

Don't let relative humidity wreck your pneumatic tools!



DRY CLEAN AIR

Even desert air contains moisture, and the higher the *relative humidity*, the more water collects in air lines when air is compressed. By compressing air, the water in the air is consolidated along with it.

The Aridifier effectively removes moisture from the compressed air lines by centrifugal force—dirt and scale, too. Completely protects air tools, controls, paint sprays, etc. Only device of its kind. Employs no traps, baffles, filters or porous stones. Thousands in use. For lines $\frac{3}{8}$ " to 10". Send for Bulletin 545.



Logan Engineering Co.
4900 Lawrence Ave., Chicago 30, Ill.

Logan ARIDIFIER

Dries and Cleans Compressed Air

When inquiring specify CP A3828 — see handy form pages 2-3

STAINLESS STEEL FLOATS for severe service



The strength and corrosion resistance of stainless steel makes floats of this material particularly adapted to many services where ordinary floats would be short-lived. Stainless steel floats may be safely used at operating temperatures up to 800 deg. F. For more severe service, at temperatures up to 1600 deg. F., floats of stabilized 18-8 stainless steel, with Chicago Float Works stabilized weld, make the most of the exceptional corrosion resistance of this material. Spherical (ball) shape only, with standard connection fitting, or without connection. Standard sizes, 3 to 10 inch diameter.

Get complete data on stainless steel floats, as well as all other types, in our general catalog, sent upon request.

CHICAGO FLOAT WORKS, INC.

"Nothing but Floats" since 1915

2330 SOUTH WESTERN AVENUE, CHICAGO 8, ILLINOIS

When inquiring specify CP A3829 — see handy form pages 2-3

JANUARY - FEBRUARY, 1946

PRODUCTION

Collector For Vapors From All Types of Cutting Fluids

Collected fluid returned to reservoir

Uses — For stopping and collecting vapor from oil or cutting fluids, arising from cutting, grinding and similar operations and returning it to the source of supply. This vapor collector is for use on virtually any type of high speed production machine tools employing cutting oils or coolants such as: screw machines, thread grinders, centerless grinders, wet carbide tool grinders, etc.

Description — The unit employs a motor driven multiple blade fan to provide suction to draw the vapor from the vicinity of the operator and the work. The vapor laden air is sent against the inside surface of the spun glass filter material where the vapor condenses and is collected in the pan, the cleaned air being recirculated to the sump or reservoir of the machine tool through the faucet provided on the pan. Having a suction capacity rating of 500 cfm, the collector is capable of stopping vapor from very large machine tools employing cutting or similar fluids. Installation is quickly made with either ordinary sheet metal pipe of flexible metal hose of 5 inch diameter which fits the inlet flange of the collector and can be located near the source of the vapor. Usually, the collector is mounted immediately behind and above the area of the work so that it not only is in the best location for catching the vapor, but also for providing the easiest means of returning the fluid to the sump or reservoir of the machine. The standard motor to drive the fan and provide the suction is $\frac{1}{3}$ HP, 3450 rpm, continuous duty type, for operation on 220 v., 3 phase, 60 c. alternating current. Units for operation on power sources of other voltages and frequencies are available on order. Complete details on "Dustkop" Vapor Collectors on request.

AGET-DETROIT CO., Dept CP, 602 First Natl. Bank Bldg., Ann Arbor, Mich.

When inquiring specify CP A3830 — see handy form pages 2-3

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Processing Equipment for Drying & Evaporation of Chemicals and Foods

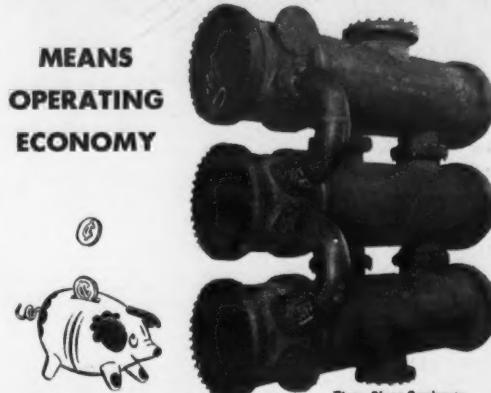
"New Equipment for New Processes in Drying, Evaporation, Processing Foods and Chemicals" is the highly appropriate title of an eighteen page bulletin (Number 336) that illustrates and describes a wide selection of equipment for such services. Initial pages are devoted to presentation in pictures and text of facilities of this organization's research laboratory and pilot plant equipment to aid customers in the solution of processing problems and development of more efficient production methods. Highly detailed information together with pictures of actual installations provide interesting reading for all those concerned with evaporators for chemicals, food products and solvent recovery. Other sections are devoted to double drum dryers and enclosed drum dryers, single drum dryers, flakers and cooling drums. Additional units include vacuum drum dryers, rotary drum dryers, seamless jacketed kettles and mixers and electric heated and direct fired impregnators. Copies of bulletin on request.

BUFFALOVAK EQUIPMENT DIV. (BLAW-KNOX CO.), Dept. CP, Buffalo 11, N. Y.

When inquiring specify CP A3831 — see handy form pages 2-3

WHITLOCK DESIGN

MEANS
OPERATING
ECONOMY



Three-Stage Condenser.

"A penny saved is a penny earned" has been a motive behind the performance of Whitlock heat transfer equipment for over half a century. Emphasis is laid, for example, on the economic approach temperature, i.e., the temperature difference between the hot and cold fluids which will return the greatest net profit. This basic Whitlock principle, backed up with practical experience and years of research, produces properly designed heat transfer units which operate with maximum economy.

Send us your heat transfer problems.

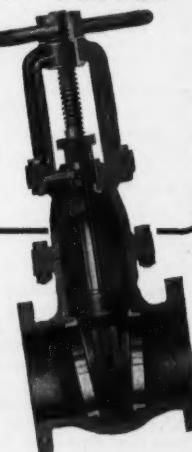
THE WHITLOCK MANUFACTURING CO.

62 South St., Elmwood, Hartford 1, Conn.
New York Chicago Boston Philadelphia Detroit Richmond
Authorized representatives in other principal cities.
In Canada: Darling Bros. Ltd., Montreal
Established 1891. Ahead of the Times for Half a century.

When inquiring specify CP A3832 — see handy form pages 2-3

Look into this NEW Valve!

The
DARLING
IRON BODY
Solid Wedge Taper Seat
GATE VALVE



RIGHT here it is . . . open for inspection . . . in the cutaway view at right.

Darling Iron Body Taper Seat Gate Valves are made in 2" to 16" sizes, with either inside screw or outside screw and yoke. They are conservatively rated for 125 lbs. steam pressure, and up to 200 lbs. pressure for oil, water, gas, air, etc. They are available with bronze trim, alloy trim, or in all-iron construction and with flange, screw, or hub ends.

Note the rugged simplicity of design that means exceptional durability and unusual resistance to strain. Other advantages: easy repacking under pressure when valve is fully open . . . wedge guides for perfect alignment every time . . . interchangeable wedges that may be inserted without removing valve from line . . . full-flow seat clearance when valve is open . . . and other equally important features.

Ask Darling Valve & Mfg. Co., 51 Walnut St., Williamsport, Pa., for Bulletin 4503.

TRADE
DARLING
VALVE & MANUFACTURING CO.
WILLIAMSPORT, PA.

When inquiring specify CP A3833 — see handy form pages 2-3

"first"
FOR GREATER
SAFETY

NEW CESCO HOOD
RESISTS STRONGEST ACIDS

Now chemical workers get 100% Safety First with the new and improved CESCO ACID HOOD. The most corrosive acids can't eat through the Acitex hood or window. It provides safety with comfort, too. The hood fits smoothly, easily over head and shoulders, ties at the waist. An air-feed unit, plus special side vents, gives wearers plenty of fresh air and splash-proof ventilation.

LOOK AT THESE TEST RESULTS!

Under tests, the tough Cesco Acitex shows these reactions to the 6 most powerful acids:

Nitric: NO EFFECT
Sulphuric: SLIGHT STAIN;
NO OTHER EFFECT
Hydrochloric: NO EFFECT

Aetic: NO EFFECT
Hydrofluoric: NO EFFECT
Carbolic: (liquefied): SLIGHT DISTOR-
TION; NO DELETERIOUS EFFECT

Learn more about this Acid Hood now.

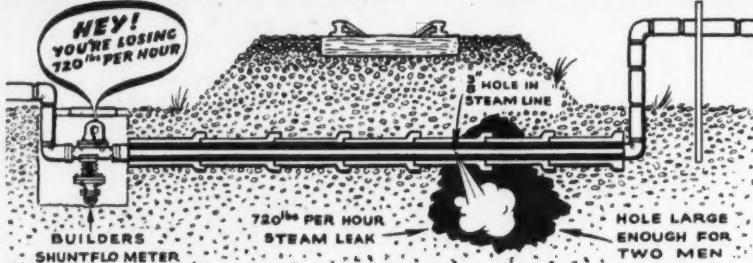
CHICAGO EYE SHIELD CO.
2338 WARREN BOULEVARD • CHICAGO 12, ILLINOIS



CESCO FOR SAFETY

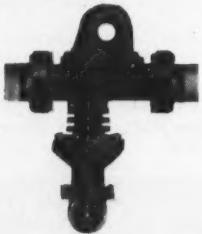
When inquiring specify CP A3834 — see handy form pages 2-3

...TELLS STEAM LOSS FROM A HOLE IN THE GROUND



They couldn't possibly be using the amount of steam registered — the Builders Shuntflo Meter was on the spot!! When all the valves were shut at the building being heated, the meter still read 720 LBS. PER HOUR.

The two-inch steamline was entirely exposed except where it passed under railroad tracks, just beyond the meter pit. Careful examination revealed a tiny wisp of steam in the bank and digging uncovered a great cavity blown by steam at 165 p.s.i. escaping through a $\frac{3}{8}$ " hole. The leak was repaired and Builders Shuntflo Meter was vindicated!



Simple, rugged, easy to install.

Self-driven; uses no clock, electricity or mercury.

Losses of steam, air or gas cost money. Metering the flow through a line is the first step in eliminating that loss. All flow in lines 1" to 12" is accurately totaled by Builders Shuntflo Meter even when flow is far above the meter's normal capacity. For measuring steam bought or sold, used by departments or processes, the Shuntflo Meter is ideal.

For Bulletin 349, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Codding Street, Providence 1, R. I.

Shuntflo is a product by the makers of Builders Propelloflo Meter and the famous Builders Venturi Meter.

BUILDERS

BUILDERS - PROVIDENCE

When inquiring specify CP A3835 . . . see information request blank, pgs. 2-3

PRODUCTION

Control Improves Operation of Hydraulic Crane-Bridge Brakes

Provides automatic cushioned emergency stops when power fails or crane runs beyond safe limits on runway

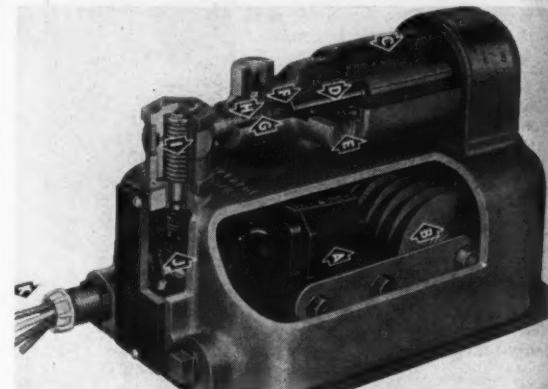
Uses — This new brake control unit which was recently developed for the maker's Type HM Crane Bridge Brake provides automatic "cushioned" emergency stops when brake power fails or crane runs beyond safe limits on the runway. This brake control unit permits free use of the foot controlled hydraulic brake for service stops while at the same time it holds the parking brake setting spring compressed and ready to apply the brake in an emergency such as in overrunning of a limit switch, power failure or in the event the operator wishes to park the crane. In either event the cushioned stop valve of the control unit applies the brake at a pre-determined rate so as to bring the bridge and its load to a quick but smooth stop, without undue swinging of the suspended load.

Description — The brake is automatically applied when the operator pulls the main line switch, which he does on taking the crane out of operation. To release the brake the operator merely makes a full application of the foot pedal. This compresses the brake setting spring, and the control unit holds it compressed until the electric circuit to the unit is opened. With this control unit installed in the system, the operator has a hydraulic brake for service

stops, a spring set brake for parking, plus an automatically applied cushion stop brake for emergencies, all in one brake.

Operation — The unit shown in the illustration is for use with alternating current and has a transformer (A) and a selenium rectifier cell (B) that converts the line current to 12-volt direct-current for operating the "cushioned stop" valve. In the direct current unit, resistors are used in place of the transformer and rectifier.

While the crane is in operation electromagnet C is energized, holding plunger D against escape port in sealing cup F. In this position whenever the operator uses the



Unit extends service of crane-bridge brake

brake for service stops fluid enters port E and goes directly to the brake actuating cylinder from outlet port (hidden in this photograph) opposite of port E. When line circuit K is opened, as by a limit switch or power failure, magnet C is de-energized, releasing plunger D and permitting the escape of fluid from hydraulic-releasing cylinder mounted on the brake. This fluid must pass metering disc G which meters the escape of fluid so as to allow the brake to set by spring action at a predetermined rate.

To release the parking brake the operator makes a full application of the foot pedal. Fluid entering port E passes readily through sealing cup F, since magnet is now de-energized, and out the lower port to the hydraulic releasing cylinder to compress the brake-setting spring. Fluid is also forced through tube H and acts on plunger I to close switch J. With the closing of switch J magnet C is energized thereby trapping hydraulic fluid in the releasing cylinder and holding the brake-setting spring compressed.

WAGNER ELECTRIC CORP., Dept. CP, 6400 Plymouth Ave., St. Louis 14, Mo.

When inquiring specify CP A3836 — see handy form pages 2-3

*

Racks, Troughs, Tables, Proofing Boxes and Related Equipment

Over three hundred pieces of equipment for use in bakeries are illustrated and described in an eighty page catalog. Racks, troughs, tables, proofing boxes are available in many types and sizes.

Speedy, inexpensive sifters as well as a portable sifter-elevator are also offered. The hopper of the latter holds a whole barrel of flour and by means of a special extension capacity can be increased to 280 pounds. Copies of Catalog 42 on request.

UNION STEEL PRODUCTS CO., Dept. CP, Albion, Mich.

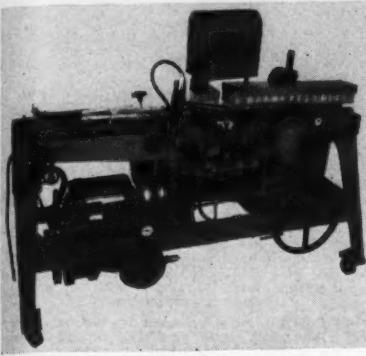
When inquiring specify CP A3837 — see handy form pages 2-3

CHEMICAL PREVIEW

PRODUCTION

Labeler for All Shapes
Of Bottles, Cans, Boxes

Handles labels up to 5" diameter



Labeler handles any shape container

Uses — Applies labels from size of postage stamp to five inches in diameter on containers from one quarter ounce to one gallon at rate of 1200-3000 per hour. For use in connection with gummed backed or ungummed; foil, varnished lithographed or plain. Containers may be glass bottles, metal cans, cardboard boxes, porcelain jars of any shape.

Features — One of the most important features is the "multiple wiper." It automatically wipes down the labels and containers. This seals the edges of the stiff backed, quality labels to the container — a previous problem in the application of labels. It also wipes off excess glue which might appear around the edges of the label on hand applications and on many machine applications. This series of five to six extra wipes saves time that would be required by manual performance of this job. In changing from one size or shape of label to another no stoppage of the production line is necessary. Neither is this necessary when changing size of container. Change is made by simply turning a knob. **Description** — The labeler is portable and thus available for service wherever it may be required. The speed can be varied over a range of 1200-3000 per hour. Change-over from one speed to another is made in about one minute. An ingenious feature is the "magnetic label box" which depends upon the force of gravity on lead weights and in-built magnets (Alnico No. 5) to hold the labels in place.

VAC SPRAY MACHINE CO., Dept. CP,
1701 Olson Blvd., Minneapolis, Minn.

When inquiring specify CP A3838
— see handy form pages 2-3

For more information on product at right, specify CP A3839
use information request blank between pages 2-3.



AVAILABLE IN SIZES
FROM 1" TO 4" I.D.

Lick your Corrosion Problems and Maintain Product Purity with **GLASS PIPE**



You can install PYREX brand Glass Pipe Lines with complete confidence that they will stand up under actual plant operating conditions. Their sturdiness and serviceability have been proved by installations that have been in operation in process industry plants for many years. If your present pipe lines need frequent replacement because of chemical attack, if product purity is a factor, if visual inspection of your pipe lines and their contents would be helpful, you can profit materially by installing PYREX Pipe.

PYREX PIPE & FITTINGS

Ease of Installation — Your own men can install a PYREX brand Glass Pipe Line. No special tools or special training are required. The pipe, the fittings and the hardware come to your installation point ready for assembly. There's no cutting to lengths, no threading necessary on the job. Stock adaptor flanges are available to connect PYREX Pipe to metal pipe and other plant equipment.

Sizes and Fittings — PYREX Brand Glass Pipe is now available in 1", 1½", 2", 3" and 4" i.d. A complete line of standard PYREX fittings includes ell's, tees, return bends, laterals, and reducers. Special fittings can be readily made to your specifications.

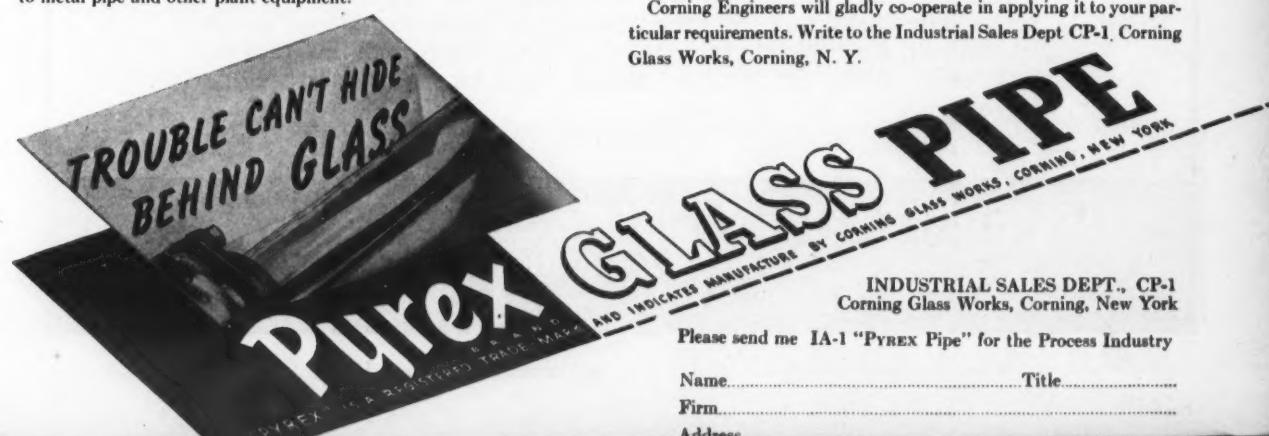
Pressures and Temperatures — Operating temperatures as high as 250°F. are not unusual—and temperatures as high as 400°F. can be considered. Most installations operate at pressures up to 50 p.s.i.—but pressures as high as 100 p.s.i. can be considered.

Visibility — The crystal-clear transparency of PYREX pipe permits visual inspection of every foot of your pipe line at any time. This feature serves to forewarn you of unexpected trouble in your pipe lines.

Low Cost — Whether you figure costs of new equipment in terms of initial outlay or in terms of over-all costs—spread over the length of service it will give you—PYREX Pipe is your best bet.

Maintaining Product Purity — PYREX Pipe is resistant to all acids (except HF) and moderate alkalis. There is no heavy metal pick-up or danger of metallic contamination.

Corning Engineers will gladly co-operate in applying it to your particular requirements. Write to the Industrial Sales Dept. CP-1, Corning Glass Works, Corning, N. Y.



Please send me IA-1 "PYREX Pipe" for the Process Industry

Name..... Title.....

Firm.....

Address.....

SELF DRAINING

Today's
newest idea in
**SEPARATOR
DESIGN . . .**



With this new Johnson Type "SA" Separator there's no need for external traps—no more bother and uncertainty of manual draining. It has a complete trap mechanism built right in—drains itself automatically whenever necessary.

Like all Johnson Separators it removes more than 99% of all moisture and dirt from compressed air or steam. It can be teamed up with the Johnson Aftercooler where moisture has been vaporized by heat of compression, or with the Johnson Oil Absorber where every trace of oil must be removed.

Johnson Separation Devices come in sizes, styles for all needs. Write for new bulletin.



THE Johnson Corporation

826 WOOD STREET, THREE RIVERS, MICHIGAN

When inquiring specify CP A3840 — see handy form pages 2-3

Attention: Plant Engineers and Superintendents

SIMPLICITY GYRATING SCREENS of standard type construction are doing excellent work in screening and dewatering various materials in chemical plants. However, our engineers have now completed a successful design of a special Simplicity Screen for this industry. The efficient Simplicity gyrating mechanism is retained, but the screen body is built to provide easy and quick access to all its parts so that it is 100% sanitary. The screen sections can also be changed at a moment's notice. Installations of these sanitary type screens are now being made in several key plants, where their operation can be closely checked. Write for further details and for recommendations covering your own problem.

SIMPLICITY ENGINEERING COMPANY
DURAND, MICHIGAN

For Canada: Waterous Limited, Brantford, Ontario

When inquiring specify CP A3842 . . . see information request blank, pgs. 2-3

PRODUCTION

Vibration Mount for Small Units

For dead weight loads as low as one pound



Light-duty vibration mount distribution of weight; i.e. the amount carried by each support. Table in specification bulletin (available on request) has handy chart from which to make selection.

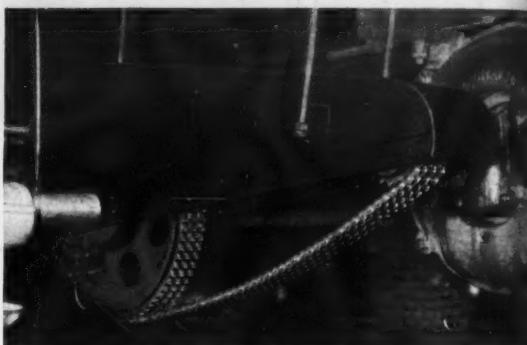
Description — The machine to be isolated is fastened to the mount by stud into tapped hole. The amount is fastened to its support by bolt or screw through holes provided (see photo). Light duty mount illustrated is offered in sizes and capacities for requirements ranging from one to two hundred pounds. This organization also offers heavy duty mounts for proper dead weight from 225-3800 pounds; also a "V" type for top heavy machines only in the same range. Copy of the illustrated specification bulletin on "Rexon" mounts referred to is available on request.

HAMILTON KENT MFG. CO., Dept. CP, Kent, Ohio.

When inquiring specify CP A3841 — see handy form pages 2-3

RELIABLE DRIVES

Save Maintenance — Cut Delays



Diamond Roller Chain drive with motor in low space beneath floor. Compactness and dependability are two factors which make this installation, in a fairly inaccessible place, practical.

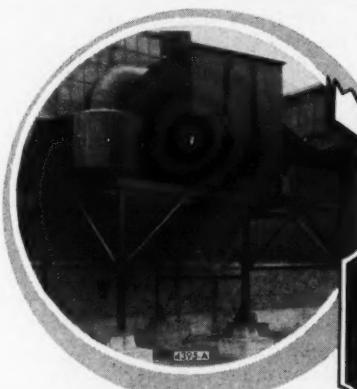
DIAMOND Roller Chain Drives are selected by the experienced industrial engineers. They will serve you well on all types of power drives — at low or high speeds and for capacities up to 2500 H.P.

Tell us your drive requirements and we will recommend the proper Diamond Chain to do the job. DIAMOND CHAIN & MFG. CO., 411 Kentucky Avenue, Indianapolis 7, Indiana. Offices and Distributors in All Principal Cities.



**ROLLER
CHAINS**

When inquiring specify CP A3843 — see handy form pages 2-3



A cyclone and a Sly Dust Filter collect dust from grinding and sandblast operations on non-ferrous castings. The Sly Dust Filter is needed to collect completely all the fine dust which the cyclone could not catch.



**Get ALL the Dust...
EVEN THE VERY FINE DUST**

It is the fine dust which does the damage. The fine dust works its way into the bearings and other moving parts of machinery and settles widely over plant and neighborhood.

Only the fine dust is injurious to the human body. The coarser particles are stopped by the nose and mouth; only the very fine particles enter the respiratory system.

A combination of a Sly Dust Filter and a cyclone Collector is not uncommon. Often the cyclone does not collect the fine dust. Then a Sly Filter is added to get it all—by filtering the dust-laden air through cloth.

Sly Dust Collectors are not expensive—in first cost, maintenance, operation. Over 5000 installations. Ask for Bulletin 98 and tell us your problem.

THE W. W. SLY MFG. CO.

Pioneers and Leaders in Industrial Dust Control
4754 TRAIN AVENUE, CLEVELAND 2, OHIO



When inquiring specify CP A3844 — see handy form pages 2-3

★ DIRECTORY ★

of products in this issue

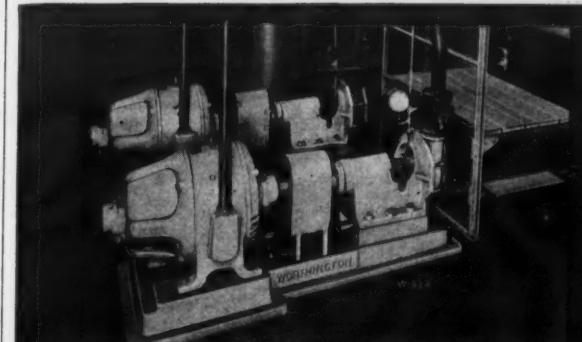
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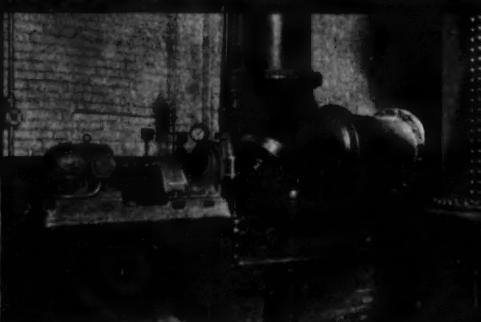
(Continued on next page)

HOW TO PUMP HOT BRINE SLURRIES

... with the least corrosion and abrasion



Worthington Worwhite Centrifugal Pumps delivering 40-50% table salt slurry at 160 F. Max. Temp. from evaporators to Oliver filters.



Worthington Worwhite centrifugal pump handling ammonium sulfate slurry. Original packing was in service fourteen months without gland take-up.



Worthington Type CG Worwhite centrifugal pumps handling potash brine.



Worwhite parts of Worthington centrifugal pump after handling table salt slurry for 27 months. Those sharp edges of the impeller, when checked by micrometer, showed no wear. Even impeller nuts escaped corrosion and abrasion. The packing was in service for 6 to 7 months.

Specify Worthington Worwhite Centrifugal Pumps

It will pay you to investigate why Worthington Worwhite Centrifugal Pumps are so successful in handling such abrasive and corrosive-abrasive brine slurries as sodium chloride, Glauber's salt, potash, ferrous sulfate, ammonium sulfate, and other slurries such as clay slip, emery and water for grinding glass, lime slurries, etc.

Look into Worwhite . . . a complex alloy steel containing over 50% nickel, chromium, molybdenum, silicon, manganese and copper. Learn why such a relatively soft metal withstands severe abrasive and corrosive-abrasive conditions.

THE
WORLD'S LARGEST
MANUFACTURER
OF PUMPS



Type CG and EGL
Sizes 1½" to 3"
Capacities to 525 GPM,
heads to 130 ft.
Standard, all iron and
all bronze.

Type CF, Sizes 1" to 4"
Capacities to 1000
GPM; heads to 130 ft.
Standard, all iron and
all bronze.

Type CO, Sizes 1½" to
3"
Capacities to 600
GPM; heads to 300 ft.
Single stage volute. For gen-
eral service.

Type L, Sizes 3" to 8"
Capacities to 2250 GPM;
heads to 300 ft. Single
stage volute. For gen-
eral service.

Bulletin W-350-B8 and Vol. 1, No. 3 issue of Worthite News give full technical data on the ability of Worthite to resist wear and corrosion in slurry handling.

Write for your copies today—and see why there's more worth in Worthington. *Worthington Pump and Machinery Corporation, Harrison, N. J.*



24C5-4

When inquiring specify CP A3845 . . . see information request blank, pgs. 2-3

Page 119

**A REVIEW OF
CHEMISTRY AT WAR**

**A PREVIEW OF
CHEMISTRY TOMORROW**

See how the chemistry that helped win the war will affect peacetime industry — your industry — and YOU. Be at the 20th Exposition of Chemical Industries at Grand Central Palace, New York, February 25 to March 2.

There you will see and learn about new processes, new equipment, new materials — many of them unheard of before the war and being revealed in detail only now.

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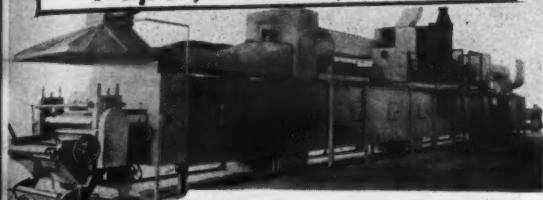
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"That's Interesting"

Shark Liver Oil Industry Booming

Shark liver oil production has grown greatly within the last few years. The industry is flourishing on both coasts. One important area is at Salerno, near West Palm Beach where leopard, dusky brown, sand, sand bar, black tip, hammer head are found. No soupfin are in evidence however. The soupfin and dog fish shark lead in liver production. The great demand for the soupfin is because of the high potency of the oil — 100,000 units of Vitamin A per gram. Continued exploitation of the soupfin shark may cause depletion of this species. Sharks being mammals, have a slow reproductive cycle. The United States is the only country that is equipped to produce shark liver oil on a very large scale.

Vitamins — 100 Proof?

Recent experiments indicate that vitamins may be added to wines and liquors. Recent tests at a leading university demonstrate that B vitamins added to wine retain potency over prolonged periods and that vitamins could be similarly added to other liquors.

Electronic Method Paints All Around Pipe at One Time

By using modern electronic tubes to provide a high electric potential difference between the paint spray nozzle and the work, it is now possible to paint all around a pipe at one time. While the method is applicable only to metal objects, in such applications it does give the painter substantial help in many close places. The tiny atomized droplets of paint are given electric charges as they leave the spray nozzle that are of opposite sign to that of the work. This gives added impetus to the droplets and even pushes them along curved paths. Furthermore, no mist of paint flies about to smudge the neighborhood or be breathed by the painter. (The Chemical Digest — Foster D. Snell, Inc., Brooklyn 1, N. Y.)

Avoiding Metal Discoloration In Plastics

There is much interest in producing lighter colored plastics — avoiding discoloration by metal contamination. This has prompted the use of corrosion resisting metals for resin kettles, turbo mixers and similar equipment. (International Nickel Co.)

Fluorescent Lamp Has 2 Arms Each With Own Tube

An adjustable fluorescent desk lamp with two arms mounted on a swivel offers increased convenience and eye saving illumination. Fastened to a vertical base, the arms can be mounted on either side of a desk for right or left handed persons. The arms, each containing a fluorescent tube can be swiveled through an arc to bring the lights parallel to each other for maximum intensity. For a wide range of light they can be spread to a 180 degree angle. (Electrical Manufacturers Public Information Center, 155 East 44th St., New York 17, N. Y.)

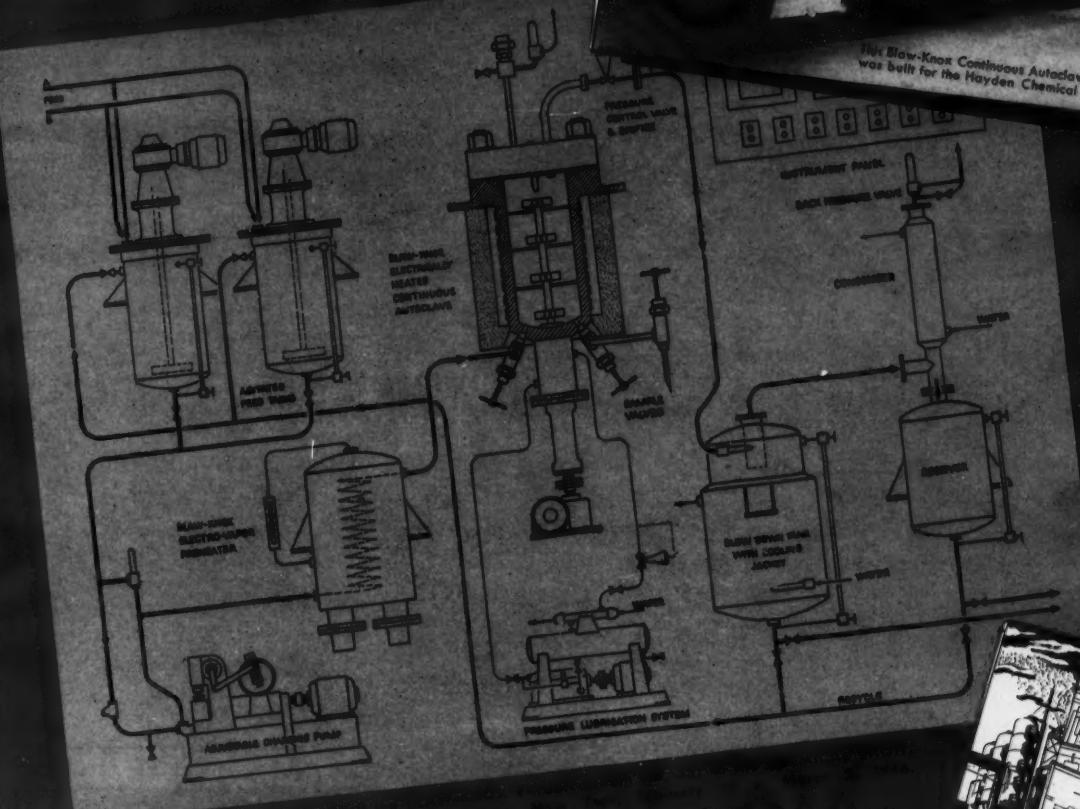
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see information request blank between pages 2-3.

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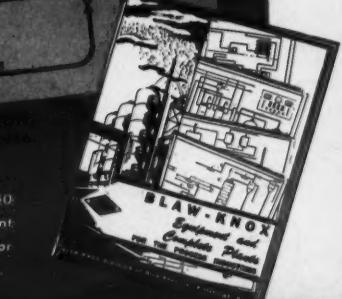
Continuous retort systems have revolutionized many processes. New economies and greatly increased production rates have been effected. Blaw-Knox equipment and Blaw-Knox engineering have had a large part in the change-overs to continuous autoclave systems.



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